LIBERTARIAN PATERNALISM:

THE COCAINE VACCINE AS A TEST CASE

FOR THE SUNSTEIN/THALER MODEL

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ABSTRACT:

The controversial new cocaine vaccine (TA-CD) has the potential to be an extremely effective treatment tool for recovering addicts, but it also presents opportunities for non-therapeutic uses, such as preventing cocaine use in the first place. It is foreseeable that the cocaine vaccine could become a condition of parole or probation, or receiving welfare payments, or for employment in certain occupations. Universal vaccination is also a possibility but less likely for political reasons. This article investigates each of these areas of potential use. Any setting where mandatory drug testing is currently in place could become a venue for the vaccination.

Cass Sunstein and Richard Thaler have recently proposed a new socioeconomic model for policy makers to use in making decisions that affect the choices of others: "libertarian paternalism." Drug laws and vaccine policies are both areas that present thorny issues of paternalism, respecting personal liberty, and public safety; the cocaine vaccine, therefore, provides an appropriately complex test case for the new model. When "libertarian paternalism" is applied, however, it becomes clear that the latent biases of policy makers present unresolved problems for the model. The Sunstein/Thaler proposal would be more powerful if it were refined to account for these difficult situations, which are the very settings where a new model is most needed.

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We make bad choices. And we make choices for other people. This seems to be an unfortunate pair of statements, and it would be just as unfortunate (or maybe worse) in the reverse: We make choices for other people. We make bad choices.

These two sentences are more palatable with some qualifiers. People do not *always* make bad or irrational choices; but neither do we always make optimal choices, even if we always try.[1] We *sometimes* make bad choices. The word "sometimes" is helpful, because it is more precise, but not completely necessary from a grammatical or syntactical standpoint. "We make bad choices" can mean either that we *always* make bad choices, or that we *usually* do, or that we *sometimes* do – or even that we did so just once, but are likely to do so again. For the time being, it is helpful to keep this ambiguity afloat to illustrate a point.

The same qualifications, of course, apply to the second sentence. Not all of us routinely make decisions for others;[2] however, at some point in life, we are forced to make at least some choices on behalf of others, whether they are our clients, children, customers, or the students we teach or colleagues we supervise.

[1] Whether a decision becomes successful or unsuccessful depends on factors such as having accurate and complete information concerning all potential choices, as well as the results of the choices themselves (like whether harm comes to innocent third parties). *See* HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR: A STUDY OF DECISION-MAKING PROCESSES IN ADMINISTRATIVE ORGANIZATIONS 80-81 (3rd ed. 1976). Simon argues that when studied on an individual level, perfectly rational choices are virtually non-existent. Due to the almost infinite number of potential choices or approaches that are possible when facing even the most seemingly inconsequential decision, the requirement of complete information for perfectly rational decision-making can never be attained. In order to cope with such an expansive amount of information and possibilities, Simon suggests that the human mind creates certain default conditions (or "givens") in order to make the decision process manageable.

[2] Categories such as minors and the mentally incompetent are obviously discouraged from making decisions for others – moreover, they are often discouraged from making decisions concerning their own allocation of resources. For example, the establishment of the insanity defense in the criminal law acknowledges the possibility that in certain circumstances, the human mind can become detached from reality in such a fashion as to render the person either unable to comprehend the quality or nature of her actions, or even cognizant that her actions were in the wrong. *See* Daniel M'Naghten's Case, 8 Eng. Rep. 718 (H.L. 1843). These examples serve as yet another example of paternalism acting to aid in the creation of a more efficient society.

These two statements are useful in their simplistic form for illustrating the nature of the debate—or better, the tension—between libertarianism[3] and paternalism.[4] In a simplistic form, paternalism assumes one of my first two sentences (we make bad decisions) as the justification or rationale for the second (*therefore*, it is necessary to have those who are more enlightened choose things on behalf of others). Libertarians use the same building blocks with different connectors: we make bad decisions; therefore, it is particularly deplorable that we make decisions for others, who will have to live with the unfortunate consequences. Of course, the two approaches have historically occupied opposite ends of a spectrum, or competing schools of thought, despite certain similarities in assumptions.

Cass Sunstein and Richard Thaler have proposed a synthesis of these two ends of the policy continuum in a well-thought article entitled *Libertarian Paternalism is Not an Oxymoron*.[5] Their position is not some middle-of-the-road attempt to find a "balance" between two extremes; rather, they offer a model that preserves the core values of each approach by breaking the area of application into manageable parts.[6] By taking account of human frailties in

[3] For a functional definition of libertarianism, see DAVID BOAZ, LIBERTARIANISM: A PRIMER 2-3 (1997) (defining libertarianism as "the view that each person has the right to live his life in any way he chooses so long as he respects the equal rights of others. Libertarians defend each person's right to life, liberty, and property-rights that people possess naturally, before governments are created.… [L]ibertarians condemn such government actions as censorship, the draft, price controls, confiscation of property, and regulation of our personal and economic lives."). *See also* DAVID BOAZ, THE LIBERTARIAN READER: CLASSIC AND CONTEMPORARY READINGS FROM LAO-TZU TO MILTON FRIEDMAN (David Boaz, ed., 1997).

[4] For an in-depth analysis of modern-day paternalism and selected applications of its principles, see JOHN KLEINIG, PATERNALISM 18 (1983) ("Central to understanding paternalism is the conjunction of two factors: an imposition and a particular rationale. X acts to diminish Y's freedom, to the end that Y's good may be secured."); *cf* MARY R. JACKMAN, THE VELVET GLOVE: PATERNALISM AND CONFLICT IN GENDER, CLASS, AND RACE RELATIONS (1994).

[5] Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism is Not an Oxymoron*, 70 U. CHI. L. REV. 1159 (2004) (arguing that from a public policy standpoint, governmental and private organizations should attempt to positively influence decisions while preserving individual choice).

[6] *Id*. at 1160. They put it well when they stated the following:

> We propose a form of paternalism, libertarian in spirit, that should be acceptable to those who are firmly committed to freedom of choice on grounds of either autonomy or welfare. Indeed, we urge that libertarian paternalism provides a basis for both understanding and rethinking a number of areas of contemporary law, including those aspects that deal with worker welfare, consumer protection, and the family.

making decisions, a chronic problem for the otherwise appealing rational-actor paradigm,[7] Sunstein and Thaler focus the inquiry on which situations make us most susceptible to mistakes,[8] rather than on the relative superiority or inferiority of one group (the rulers or the subjects, so to speak) at making good choices. It is the confusing situation, and not the confused person, that justifies a limited degree of paternalism. Sunstein and Thaler justify their position in part by showing that paternalism is nearly always present and unavoidable, because of the important effects of how choices are framed and which options operate as the default rule.[9] Even in forced-

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Id. at 1160.

Further, Sunstein and Thaler urge that their model does not promote an approach that renders the individual powerless to make her own decisions: "The libertarian aspect of our strategies lies in the straightforward insistence that, in general, people should be free to opt out of specified arrangements if they choose to do so. To borrow a phrase, libertarian paternalists urge that people should be 'free to choose.'" *Id*. at 1161. However, the model does endorse, if not encourage, some private or public sector involvement in selectively framing the individual's choices so as to provide the optimal choice as the default: "[W]e argue for self-conscious efforts, by private and public institutions, to steer people's choices in directions that will improve the choosers' own welfare. [A] policy therefore counts as 'paternalistic' if it attempts to influence the choice of affected parties in a way that will make choosers better off." *Id*. at 1162.

[7] Extensive literature exists analyzing the neoclassical model of the rational actor as it is applied to the law. More recently, behavioral economics has synthesized certain elements of psychology, sociology, and economic theory to pursue more 'realistic' theories on human decision-making. Behavioral economists have identified several fundamental flaws that are exhibited in decision-making on a regular basis. These flaws include: bounded rationality, bounded willpower, and bounded self-interest. Christine Jolls, Cass R. Sunstein, & Richard H. Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 at 1476 (1998).

Others challenging the application of neoclassical economic theories to the law have not stopped with the rational actor model. In his often contemptuous, often harsh, review of Posner's *Economic Analysis of the Law* (1973), Leff voices his concerns with the movement as a whole:

> [A]s lovely as all of this is, [economic analysis and the law] is still unsatisfactory as anything approaching an adequate picture of human activity, even as expressed in that subcategory of living loosely called 'law.' But one can still admire the intelligence with which it is tried, and the genuine, though limited, illuminations the effort provides. … Since its basic intellectual technique is the substitution of definitions for both normative and empirical propositions, I would call it American Legal Nominalism.

Arthur Allen Leff, *Economic Analysis of Law: Some Realism About Nominalism*, 60 VA. L. REV. 451, 458-59 (1974).

[8] *See* Sunstein & Thaler, *supra* note___ at 1161:

> Our emphasis is on the fact that in many domains, people lack clear, stable, or well-ordered preferences. What they choose is strongly influenced by details of the context in which they make their choice, for example default rules, framing effects (that is, the wording of possible options), and starting points.

[9] Sunstein and Thaler dicuss the consumer's ability to choose between ice cream flavors versus medical treatments or financial investments as an example of the effect of perfect information (or the lack thereof) on the consumer's choices as well as demonstrating the how the consumer's decision-making process must change as the choice becomes more complex. *Id*. at 1163. However, upon closer examination this analogy also highlights the seeming omnipresence of limited forms of paternalism in virtually every instance of choice: "There is, in [certain] situations, no alternative to a kind of paternalism – at least in the form of an intervention that affects what people

decision scenarios with no default choice, framing effects and position biases still have palpable effects.[10]

A very similar proposal has appeared in the University of Pennsylvania Law Review recently using the less catchy name "asymmetric paternalism;"[11] the coterie of economists, joined by Samuel Isacharoff from Columbia Law School, have put forth the argument. Their article focuses specifically on situations where some consumers in a defined group make bad decisions, while others do not; a little bit of the right kind of paternalism, they argue, could make the poor decision-makers better off without making the rational ones worse off. Such cases warrant limited paternalism because it is so efficient.[12]

Their argument may not win over many hard-core libertarians (paternalists would probably find less that is objectionable), but for policy makers or commentators it provides a useful model for situations where some degree of paternalism is at least tempting, if not unavoidable.[13] I like the model; it is an overdue contribution to the controversy.

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choose. We are emphasizing… the possibility that people's preferences, in certain domains and across a certain range, are influenced by the choices made by [others]." *Id*. at 1164.

> Sunstein and Thaler go on to explain their position in support of libertarian paternalism:
> [W]e make two general suggestions. First, programs should be designed using a type of welfare analysis, one in which a serious attempt is made to measure the costs and benefits of outcomes (rather than relying on estimates or willingness to pay). Choosers should be given more choices if the welfare benefits exceed the welfare costs. Second, some results from the psychology of decisionmaking should be used to provide ex ante guidelines to support reasonable judgments about when consumers and workers will gain most by increasing options.

Id. at 1166.

[10] Sunstein & Thaler, *supra* note _, at 1177-79.

[11] Colin Camerer, Samuel Issacharoff, George Loewenstein, Ted O'Donoghue, & Matthew Rabin, *Regulation for Conservatives: Behavioral Economics and the Case for "Assymetric Paternalism,"* 151 U. PENN. L. REV. 101 (2003). My article will refer mostly to the Sunstein/Thaler model (Libertarian Paternalism) because it is somewhat more general; the "asymmetric paternalism" model focuses mostly on consumer settings.

[12] Specifically, Camerer, Issacharoff, and Loewenstein argue that in certain instances, the consumer suffers from certain decision-making errors, creating a situation in which the consumer's utility is not fully maximized through their choices. Through the judicious use of paternalistic policies, the down-side risk for the subject group decision-makers in these situations can be severely curtailed while the fully-rational decision-makers (in the subject class) are not negatively affected – i.e. creating a situation of asymmetric paternalism. *Id.* at 1211-12.

[13] Sunstein and Thaler directly address situations where paternalism is unavoidable and suggest that it is in these instances where libertarian paternalism can become most beneficial. Empirical psychological and economic research suggests that decisionmakers often suffer from several forms of rationality-limiting behaviors which

My contribution, in turn, is to apply the model for the first time to a complex test case: the anti-cocaine vaccine.[14] In doing so, I hope to show that several unexpected features—some problematic—emerge with this model, suggesting a need for refinement. Rather than furnishing an excuse to dismiss the model, I propose the model is sound overall and worth refining to address these quirks.

Pharmaceutical researchers have developed what appears to be a completely effective, and completely safe, vaccine against cocaine (and its derivative drugs like crack).[15] Administered by injection, the vaccine remains in the bloodstream for an extended time. When the subject ingests cocaine, the anti-cocaine agent bonds with the cocaine molecules—scientifically, it may be more accurate to say it is a cocaine-loving agent—and the bound compound is an inert substance that flushes out of the body. The person experiences absolutely no effects from the cocaine. There is no high. There is no overdose. The metabolism does not

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operate to negatively affect subsequent choices. "People fail to make forecasts that are consistent with Bayes's rule, use heuristics that can lead them to make systematic blunders, exhibit preference reversals…, suffer from problems of self-control, and make different choices depending on the framing of the problem." Sunstein & Thaler, *supra* note __ at 1168. It is precisely because of these errors in decisionmaking that paternalism is present in some degree in virtually every scenario involving choice. Furthermore, classic libertarian solutions to imperfect decisionmaking cannot combat these problems. For example, providing the decisionmaker with adequate information is often touted as a solution to imperfect decisionmaking. However, regardless of how independent, unaffiliated, and unbiased the source attempts to purvey the information, the decisionmaker may perhaps still suffer from framing and anchor effects, thus leading to less-than-ideal choices in the long term. *See Id*. at 1183.

[14] Sunstein & Thaler, supra note _, at 1116 *et seq.*. In their article, Sunstein and Thaler apply their model to several test cases, including employee retirement savings plans, organ donation systems, and labor and employment law among others; however, these scenarios readily adapt themselves to analysis of this sort. This paper attempts to perform an in-depth analysis of the libertarian paternalist model as it is applied in the controversial social context of illicit drug abuse and addiction.

[15] Barbara S. Fox, *Development of a Therapeutic Vaccine for the Treatment of Cocaine Addiction,* 48 DRUG & ALCOHOL DEPENDENCE 153-158 (1997); Peter J. Cohen, *Immunization for Prevention and Treatment of Cocaine Abuse: Legal and Ethical Implications,* 48 DRUG AND ALCOHOL DEPENDENCE 167-74 (1997); M.W. Johnson et al., *Active Cocaine Immunization Attenuates the Discriminative Properties of Cocaine,* EXP.CLIN.PSYCHOPHARMACOL 2000 May; 8(2):163-7; Dawn MacKeen, *Immunized Against Addiction,* SALON April 26, 2000 (available at www.salon.com/health/feature/2000/04/26/vaccine/index.html?CP=SAL&DN=110); DANIEL STEVEN SCHABACKER, EXPLORING THE FEASIBILITY OF AN ANTI-IDIOTYPIC COCAINE VACCINE (1998); BLAINE TEMPLAR SMITH, A VACCINE TO PRODUCE CATALYTIC ANTIBODIES AGAINST COCAINE (1995).

accelerate. The vaccine renders cocaine both harmless and useless; any money spent was wasted, and cocaine is not cheap stuff.[16]

The anti cocaine vaccine originated over a decade ago as a treatment tool for addicts in rehabilitation programs.[17] It solves the problem of occasional relapses throwing the half-rehabilitated patient off-kilter and off the program.[18] The vaccine has been in use on outpatients at the Yale clinic for about three years with no known side effects.[19] Each shot lasts several weeks, after which the outpatient needs a booster shot.[20] It appears to work remarkably well. Possible medical-based objections, like the chance that addicts will simply switch to another drug, will have a place in the next section. For the moment, let us assume it works and that there are no side effects or risk of harm.

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[16] *See, e.g.*, OFFICE OF NATIONAL DRUG CONTROL POLICY, WHAT AMERICA'S USERS SPEND ON ILLEGAL DRUGS: 1988-2000 2 (2001), *available at* http://www.whitehousedrugpolicy.gov/publications/asp/topics.asp ("American users spent approximately $36 billion on cocaine, $10 billion on heroin, $5.4 billion on methamphetamine, $11 billion on marijuana, and $2.4 billion on other substances….").

[17] *See, e.g.*, O. Bagasra et al., *A Potential Vaccine for Cocaine Abuse Prophylaxis*, IMMUNOPHARMACOLOGY (1992) 23:173-79; Kathleen M. Kantak, *Anti-cocaine Vaccines: Antibody Protection Against Relapse*, EXPERT OPIN. PHARMACOTHER (2003) 4(2):213-18 ("The past decade has seen the development of several vaccines against illicit drugs. These include vaccines for producing antibodies against cocaine, heroin, methamphetamine and nicotine. The present focus is on anti-cocaine vaccines, as more research has been conducted with these vaccines than [others]….").

[18] Thomas R. Kosten et al., *Human Therapeutic Cocaine Vaccine: Safety and Immunogenicity*, 20 VACCINE 1196-97 (2002). There are two basic concepts under analysis with the current research concerning antagonist family of anti-cocaine vaccines:

> The first concept for antagonists is that blocking the effects of high dopamine levels that are produced by cocaine might directly reduce reinforcement and euphoria from cocaine use. The second concept for agonists to increase dopamine neuronal stimulation is that dopamine is relatively depleted because of down-regulation of the dopamine system after chronic stimulation by cocaine abuse and that relapse during protracted withdrawal from cocaine would be less likely if this relative depletion was addressed.

Id. at 1196.

[19] *See e.g.*, Press Release, Yale University, *Dosage Appears to be a Critical Factor in Cocaine Vaccine* (January 28, 2002) *available at* http://www.yale.edu/opa/newsr/02-01-28-02.all.html; Press Release, Yale University, Anti-Cocaine Vaccine Produces Antibodies and is Shown to be Safe in Phase 1 Study Conducted by Yale Researcher (March 7, 2000), *available at* http://www.yale.edu/opa/newsr/00-03-07-01.all.html.

[20] *Id.*

These developments have so far escaped the attention of the legal community, or at least the academy.[21] My purpose here is not to herald the advent of a new wonder drug, but rather to use it as an intricate illustration of how the Sunstein/Thaler model could work in practice. Addiction and vaccinations both raise serious issues for paternalists and libertarians alike. A vaccination for a widespread addiction offers fertile ground for a thought experiment.

The greatest questions arise when a cocaine vaccine is used outside the arena of rehabilitation and treatment.[22] One can imagine the calls for mandatory vaccinations for parolees, as a significant number of them are serving sentences for drug-related (often cocaine or crack) offenses. It also seems likely that some would advocate for its use as a condition for receiving welfare payments, to ensure that scarce public resources are not squandered on illegal drugs. There are the inevitable questions of whether we should immunize everyone, or at least youngsters, especially if the vaccine were permanent, requiring only one shot. Finally, the cocaine vaccine could become mandatory for employees in certain high-stakes jobs, such as air traffic controllers. Of course, any context in which drug testing is currently in place would be a

[21] I discussed the cocaine vaccine very briefly in a previous article about welfare programs for addicts. *See* Dru Stevenson, *Should Addicts Get Welfare? Addiction and SSI/SSDI*, 68 BROOK. L. REV. 185 (2002) (providing that new and different treatment options exist for those alcohol and drug addicts formally covered under the SSI/SSDI).

[22] *See, e.g.*, Nell Boyce, *'No' in a Needle*, U.S. News & World Report, April 28, 2003, at 54. In an article addressing the very issue of vaccinations developed for treatment of addicts being used as a mass vaccination for prophylactic purposes, the author cites several examples of the potential benefits and pitfalls:

> "[Charles] Schuster… at Wayne State University [developed a vaccine that limited the effects of heroin in primate models] wasn't prepared for what happened next. 'I began to get calls and plaintive letters from parents all over the world saying please won't you immunize my child so that they won't become a heroin addict....' The idea of using a vaccine to prevent rather than just treat addiction made Schuster 'leery' and he dropped the research."

The author goes on to add: "The shots might appeal not to just addicts trying to break a habit but also to parents, schools, and governments, raising issues of personal choice and social benefit so knotty that the National Academy of Sciences will hold a meeting this week to consider them."

possible venue for the cocaine vaccine, as it would serve similar policy goals, but this article is confined to a selected set of topics.[23]

Many readers would find some of these alternatives acceptable, and others not; a few readers, who object to any mandatory immunizations, would object to them all.[24] At the other end of the spectrum, of course, there will be a set of individuals who see cocaine as an intolerable scourge on our society; this group may favor using whatever means are available to combat what they see as an epidemic.[25] The cocaine vaccine administered to the general population presents the opportunity to remove the scourge of cocaine completely in one generation.

Libertarian paternalism meets its first test at this point. This article applies the Sunstein/Thaler theoretical framework to each of these four possible scenarios. Each one would present significant issues for a policy maker. What emerges is the (rather stark) realization that the policy makers themselves are subject to variations on the bounded rationality that Sunstein and Thaler use to justify tinkering with the choices available to constituents (the subject group). Certainly these scholars would readily admit this to be the case;[26] all humans would be subject to

[23] For example, there is a growing practice of requiring drug tests of tenants in urban apartment complexes, even by private landlords, especially in the context of initial rental applications and lease renewals. The practice has not been litigated on constitutional grounds so far, but the legality of the practice is a topic of controversy. *See, e.g.*, Robert J. Aalberts, *Drug Testing Tenants: Does it Violate Rights of Privacy?* 38 REAL PROP., PROBATE & TRUST J. 479 (2003); David Lang, Note, *Get Clean or Get Out: Landlords Drug-Testing Tenants,* 2W ASH. U. J. L.& POL'Y 459 (2000). This article does not address the possible uses of the cocaine vaccine in landlord-tenant contexts, because space demands require focusing on more likely applications.

[24] This was the argument of the citizens in Jacobson v. Massachusetts 197 U.S. 11 (1905) (holding that it is within the power of a state to impose regulations mandating vaccinations, and the mandate does not violate the individual's rights as set forth in the Fourteenth Amendment to the United States Constitution), and Zucht v. King, 260 U.S. 174 (1922).

[25] For the last several years, apart from the criminal justice system, the primary point of attach in the War on Drugs has been attempts at crop eradication by aircraft flying over the Andes Mountains. *See, e.g.*, Daniel Tyler Cook, *The Case for Coca and Cocaine: Bolivia's March to Economic Freedom*, 13 MINN. J. GLOBAL TRADE 57, 79 (2004) (arguing that the crop eradication program is unfairly costly to Bolivian farmers, who depend on the crop financially). The cocaine vaccine may prove more effective and less expensive if the same policy goals driving crop eradication control the decisions about widespread usage of TA-CD.

[26] Sunstein & Thaler, *supra* note 5, at 1200 (acknowledging the bounded rationality of policymakers while providing a rationale supporting libertarian paternalism).

bounded rationality in varying degrees.[27] But the four uses for the cocaine vaccine will show, I hope, that those in the paternalist driver's seat are subject to *particular forms* of bounded rationality that are unique to their position; the subjects suffer from a very different set of issues. Sunstein/Thaler's model has guidelines for avoiding abuses of power, but not for taking these more subtle influences into account.

Part II of this article gives the reader more background on the cocaine vaccine itself. This information will be interesting to some readers, but is admittedly not entirely necessary for the sake of a thought experiment. I could have simply assumed a cocaine vaccine hypothetically to make the same point; but I think the example is more interesting if it is true to life.

Part III discusses the issues of mandating the vaccine to parolees, or at least those with a history of drug abuse. Courts already order drug testing for many of those released on parole, probation, or supervised release;[28] and some courts, especially the new drug courts popping up in some states, regularly order defendants into treatment programs;[29] this would naturally bear upon the issue of a vaccine. I conclude fairly quickly that Sunstein/Thaler's model would allow for

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[27] I use the term "bounded rationality" noncommittally. I find rather plausible Richard Posner's argument that the socioeconomist's examples of irrationality or bounded rationality are simply semantic differences for describing perfectly rational decisions made with bad information or that will have bad repercussions. As I am partially convinced that this is indeed a semantic difference, there seems to be relatively little harm in using the phrase "bounded rationality" for convenience, even if it really means something like "unfruitful rationality." For a detailed analysis of "bounded rationality" as it was originally described in the human decision-making process, *see generally* HERBERT A. SIMON, REASON IN HUMAN AFFAIRS (1983).

[28] Statutory support for drug testing as a condition of supervised release can be found in the United States Code:

> The court shall also order, as an explicit condition of supervised release, that the defendant refrain from any unlawful use of a controlled substance and submit to a drug test within 15 days of release on supervised release and at least 2 periodic drug tests thereafter (as determined by the court) for use of a contr
> olled substance. The condition stated in the preceding sentence may be ameliorated or suspended by the court as provided in section 3563(a)(4). The results of a drug test administered in accordance with the preceding subsection shall be subject to confirmation only if the results are positive, the defendant is subject to possible imprisonment for such failure, and either the defendant denies the accuracy of such test or there is some other reason to question the results of the test.

18 U.S.C. § 3583(d) (2000). *See also* Skinner v. Railway Labor Executives' Ass'n. 489 U.S. 602, 617-20 (1989)(holding that no Fourth Amendment right is violated through random workplace drug testing)

[29] *See* 18 U.S.C. § 3583(d) (2000).

mandatory vaccinations for this group; but this stands in contrast to the likely result for some of the other groups. I suggest this is because parolees, as convicts, are deemed to have forfeited some of their rights to personal autonomy; a retributive-type impulse would influence policy makers or corrections officials to take more liberty with their paternalism. Whereas the other limitations on parolee autonomy are conceptually related to the institution of parole (there must be some monitoring, efforts to re-integrate the convict into the community, etc.), these are explainable in terms of purely utilitarian and practical concerns. While some utilitarian ends may be served by immunizing parolees (and those on probation), I argue that a heavy morality-based judgmentalism, perhaps justified but still nonutilitarian, operates as a ghost in the machine of the libertarian paternalist model.

Part IV will discuss welfare recipients. In this setting, contrasted with the convict model, I argue that decisionmakers will be influenced by deep-set values of reciprocity; a feeling that the beneficiaries of the public largess should be grateful enough to willingly forfeit some of their autonomy or bodily integrity[30] and submit to the vaccination. Although there are utilitarian

[30] This article does not address constitutional issues that could arise if the cocaine vaccine were mandatory for certain sections of the population. Certainly it is of utmost importance whether the constitution bears on these issues, but at present it is not clear that it does. Mandatory vaccinations against diseases, even where criminal sanctions are threatened for those who refuse, do not violate the Constitution, according to the Supreme Court. *See* Jacobson v. Massachusetts 197 U.S. 11 (1905). This would seem to settle the question of a right to "bodily integrity" that involves the refusal of healthful shots. Clearly, however, bodily integrity is a constitutional concern in other areas, such as abortion and birth control rights, forced blood tests of inmates, etc. This means that bodily integrity (usually treated as a subcategory of the right to privacy, although sometimes treated as its own grounds of substantive due process) is a concern in general, but for some reason is inapplicable to mandatory vaccinations against disease (i.e., the public health concerns simply outweigh the privacy concerns). The uncertainty about the constitutional status of mandated cocaine vaccines, of course, lies in the fact that it is a vaccine against an affliction that is somewhat voluntary, unlike the vaccines against biological pathogens (germs) that were the subject of the early Supreme Court cases on the subject. In other words, the cocaine vaccine shares with other vaccines the fact that it addresses serious public health concerns, and is a safe, healthful, prophylactic measure against a socially costly malady (say, addiction). It is distinguishable in that it combats something that is not "caught" inadvertently, like polio or smallpox. To the extent that the similarities with traditional vaccines carry the analysis, it is likely that no constitutional issues will be applicable. Conversely, to the extent that the cocaine vaccine is viewed more as an anti-drug weapon (in the same category as random employee drug testing, for example), mandatory vaccination could become a hot constitutional question. At the present time, that seems to be all there is to say about the constitutionality of the cocaine vaccine: mandatory vaccines are constitutional, but the cocaine vaccine might be treated as a new exception to the rule. The issue has not been litigated, but it surely will be if the vaccine becomes

arguments for requiring the cocaine vaccine for this group (ensuring efficient use of public resources, etc.), I argue that the vaccine would be mandated instead because of a tit-for-tat against the individuals who might possibly refuse to get the vaccine voluntarily despite their dependence on state assistance.

Part V will address the possibility of universal vaccination, or at least of vaccinating those who are at the age of highest risk for beginning drug use. Here the situation is complicated by the fact that the age of majority occurs around the same time; the way this would be handled by a policymaker would be different if the subject group were seventeen-year-old students as opposed to eighteen or even twentysomethings. I argue that this step is the least likely to be taken, even though greater utilitarian arguments could be made for immunizing this group (costs of the vaccine aside) than the previous two. In addition, the Sunstein/Thaler model might argue more strongly in favor of immunizing members of this group because of their age and greater vulnerability to bounded rationality in their decisions (lack of wisdom and experience).[31] Still, policymakers are less likely to exercise libertarian paternalism in this case because of their close identification with the subject group.

Part VI discusses air traffic controllers. This subject group presents special issues for libertarian paternalists because of the high stakes involved in the decisions of the group members; hundreds of lives may be at stake in each of these decisions. At the same time, this

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mandatory for any group. Bodily integrity, then, is really a reference to the potential constitutional questions, and is generally outside the scope of the discussion about bounded rationality for the two poles of decisionmakers in a paternalist-libertarian analysis.

Almost all states voluntarily allow religious exemptions for vaccinations, so First Amendment challenges to vaccines have not reached the Supreme Court. Religious exemptions are more relevant to the questions of paternalism and libertarianism, and Parts IV-VI of this article will deal with these issues as they arise.

[31] Again, assuming there are no immediate side-effects or long-term deleterious effects, in which case the costs incurred by the rational actor would dramatically increase, undermining the goals of libertarian paternalism. It is important to remember that the fundamental goal of the libertarian paternalism model is to create policy situations where boundedly rational decisionmakers, suffering under certain limitations which affect their ability to make rational choices, are placed in a position to make the best choices for themselves with the least amount of interference from controlling authorities.

group highlights the problems with the model with regards to the public-private interface; air traffic controllers and those in similarly high-stakes fields (pilots, 911 dispatchers, emergency room doctors, etc.) may be required by private employers to submit to the vaccinations; the question then is how state policymakers should monitor and regulate the libertarian paternalism of the private sector. This reveals that the model must be refined to have a two-tiered approach: policymakers making choices about what choices the employers should leave to the employees, and what choices should be made by the management; and of course, what choices should be made by the policymakers themselves that "pass through" the private-sector management.

Part VII summarizes the findings and ties them together as a conclusion. There are certainly other topics that could be addressed—like the potential the vaccine has for undercover drug agents, who could now partake with the targets of sting operations without any personal bodily effects—but these are areas for further research. This is not intended as a criticism or rejection of the Sunstein/Thaler model, but rather as an exercise showing areas that need further development.

II. BACKGROUND

It began with rats.[32] Rats, as a rule, like cocaine, at least when they are given the opportunity to try it. Lab rats were administered samples of cocaine; laced feeder bottles were then made available in their cages, which the rats can use themselves, alongside the usual water bottle, etc. It does not take long for rats to learn to self-administer the cocaine; they do so

[32] Bagasra et al., *supra* note _, at 173; *see also*, M.R.A. Carrera et al., *Suppression of Psychoactive Effects of Cocaine by Active Immunization*, NATURE (1995) 378: 727-30; B.S. Fox et al., *Efficacy of a Therapeutic Cocaine Vaccine in Rodent Models*, NATURE MED. (1996) 2: 1129-32; Kathleen N. Kantak et al., *Evaluation of Anti-Cocaine Antibodies and a Cocaine Vaccine in a Rat Self-Administration Model*, PSYCHOPHARMACOLOGY (2000) 148: 251-62.

increasingly when given the opportunity, eventually manifesting symptoms of full-blown addiction.

The cocaine vaccine is made with a cocaine (or cocaine-like) molecule that is attached to a jumbo-sized protein.[33] Whereas a cocaine molecule is tiny (even for molecules, but especially compared to proteins) and can slip through the blood-brain membrane, allowing its euphoric and cognition-distorting effects to work, the oversized baggage of the giant attached protein keeps the new molecules from reaching their usual cerebral destination; they stay in the blood for the time being. The attached proteins also make a big enough target for the immune system to spot and then attack. Antibodies form in the blood designed to latch onto any foreign bodies with a molecular footprint contoured like the original tiny molecule—surface features shared by regular street cocaine. When cocaine enters the system, there is an ample supply of antibodies waiting to attack it. When the antibodies produced by the immune system latch onto the ingested cocaine molecules, it prevents their uptake into the brain, "obliterating the euphoric rush"[34] that normally motivates consumption in the first place.

The rats stop self-administering.[35] Despite their manifest addiction, and previously voracious appetite for the cocaine-laced fluid from the bottle, their interest drops off completely after the shots. Imbibing does them no good, and their cravings are not continuously re-stimulated through ingestion (cocaine has the property of self-perpetuating cravings for it). The rats experience no negative side effects.[36]

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[33] Kosten et al., *supra* note _, at 1197 (proteins in general are very large molecules, at least compared to cocaine or many others. The protein used is recombinant cholera toxin (rCTB), widely used in similar settings and considered safe for humans). "Jumbo-sized" is used mostly to help the reader picture the relative size of the protein compared to the cocaine molecule, which is far too small for the body's immune system to identify and attack as a pathogen. Of course, all of these molecules are microscopic, including the proteins.

[34] *Id.*

[35] Kathleen M. Kantak, *Vaccines Against Drugs of Abuse: A Viable Treatment Option*, DRUGS (2003) 63: 344-45.

[36] *Id.* at 344.

The same process works remarkably well with humans; at least in clinical trials so far.[37] The trials have administered the vaccine to test groups in a series of three or four shots over a period of a few weeks;[38] the patients retain sufficiently high levels of antibodies for two to four months thereafter, with trace amounts lingering for almost a year. The real anti-cocaine effect, however, seems to wear off after the first three or four months. Testing continues at locations like Yale University.

The vaccine formulation researchers settled on for now is called TA-CD. Xenova, a British pharmaceutical conglomerate, plans to take TA-CD to market in the foreseeable future and holds the appropriate rights for this.[39] There are no known adverse side effects for humans from TA-CD itself; most subjects reported that the shots hurt or caused temporary soreness where the needle struck, and a few subjects develop minor redness or muscle twitching at the site of injection for a day or so. These symptoms are fairly typical of intramuscular injections generally and have not been blamed on the TA-CD itself.[40] The results are very promising: subjects report decreased cravings, avoidance of relapses (i.e., ingesting cocaine), and progress in curing addictions. Further tests are planned.[41]

A few caveats apply. First, the researchers themselves foresee the possibilities for what they call "off-label" (non-therapeutic) uses of the vaccine, like those discussed in the remainder of this article, and they are almost uniformly opposed. The vaccine was developed as a treatment

[37] *Id.* at 345.
[38] Kantak et al., *supra* note _, at 216.
[39] *Id.* at 216.
[40] Kosten, et al., *supra* note _, at 1200.
[41] Kantak, *supra* note __, at 345. Initial findings are now available for the Phase II clinical trials of the TA-CD anti-cocaine vaccine, yielding encouraging results.

Most recently, Xenova Group indicated in October 2003 that the Phase IIb study was initiated, utilizing a randomized, placebo controlled trial, involving 132 test subjects. The goal of the Phase IIb study is to determine the vaccine's efficacy "and to determine appropriate end-points for a Phase III study." Press Release, Xenova Group plc, Xenova Initiates Phase IIb Clinical Trial for Anti-Cocaine Vaccine (October 24, 2003), *available at* http://www.xenova.co.uk/PressReleases/pr_20031024_01.html.

tool to complement a full-service rehabilitation program. Moreover, it has been tested only in this setting; the subjects have all been recovering cocaine addicts already trying to quit. The researchers tend to work within the rehabilitation milieu, not epidemiology or immunology; and they insist that the vaccine's effectiveness can only be ensured by the patient's willingness to participate in an overall treatment program (i.e., counseling) and motivation to overcome her addiction.[42] This is a bit of a bald assertion, of course; no one has tested the vaccine on unwilling subjects (for obvious ethical reasons), and it is not clear from a biological standpoint why the vaccine would *not* work the same regardless of the recipient's attitude.

Another caveat: the vaccine is only temporary, meaning that ongoing immunity to cocaine, at least given the current state of the science, would require repeat shots every three or four months.[43] This presents issues of cost as well as logistics of maintaining sufficient supplies. Right now only Xenova has plans to manufacture and distribute the vaccine; there will be a *de jure* monopoly, at least temporarily, and the risk of product elimination if the sole producing firm should fail. It is not clear if insurers will cover the vaccine injections indefinitely (if they are indeed needed indefinitely) for therapeutic uses, and it is a matter of pure speculation who would bear the costs for non-therapeutic uses. It is not even clear what the costs would be. Repeat shots also present insurmountable logistical problems with certain non-therapeutic uses, like universal immunization.

The fact that the tests have involved three or four shots up front deserves mention. Presumably, this was done as a matter of caution; TA-CD is a new product, still in its testing phases, and prudence would counsel in favor of small doses that build up the amount of antibodies in the bloodstream, so that adverse effects can be monitored at each stage, with less

[42] A. M. Washton & N. Stone-Washton, *Abstinence and Relapse in Outpatient Cocaine Addicts*, J. PSYCHOACTIVE DRUGS (1990) 22:135-47.

[43] *See* Press Release, Yale University, *supra* note ___; Kantak et al., *supra* note __, at 215.

risk of drastic harm. As confidence builds that the vaccine is safe and that subjects can tolerate higher doses at once, the number of shots required may decrease, hopefully to one.

The same principle, of course, applies to the duration of the vaccine. Clinical tests so far have used very conservative dosages as a precaution against side effects that would be overwhelming.[44] As confidence builds regarding the permissible size of a dose, and the ability of individual subjects to tolerate larger doses, the inoculation effect may last longer. This is speculative on my part, of course, but not unreasonable. A stronger dose that lasts longer would change the logistical calculation for non-therapeutic uses as well as the cost and supply issues for regular therapy. For purposes of this article, I assume conservatively that when the vaccine is brought to market it will be in a single-shot form, but enduring only four months or so. This seems reasonably close to the present state of the science. If the science changes, of course, it could affect any conclusions drawn in the following discussion. This disclaimer could tilt in either direction: the vaccine may be more adaptable to widespread non-therapeutic uses, or less so.

There is a commonly voiced concern that is probably overstated: unwilling subjects might simply ingest enormous quantities of cocaine in an attempt to overcome the vaccine. There is some disagreement in the literature so far about whether this would even be possible; it would certainly be costly, and the cost of supersized doses of cocaine would deter some consumers from trying. The vaccine would probably serve as an antidote as well as a killjoy; that is, the risk of overdose is lowered to the extent that the vaccine supply in the bloodstream attacks the incoming cocaine molecules. There are no reported cases of test subjects trying to

[44] *See* Kantak et al, *supra* note __, at __.

overwhelm the vaccine in their systems by ingesting extraordinarily large quantities of cocaine; then again, they were willing subjects.[45]

The researchers who developed the vaccine and are running the ongoing tests have the best (perhaps only) first-hand knowledge of the vaccine's uses and limitations. They also have a natural bias: it is reasonable for researchers to be concerned about the media sensationalizing possible non-therapeutic uses, because it could end up killing the project, pulling the plug on funding for further testing. It is also reasonable for those with careers in drug counseling and rehabilitation programs to feel threatened by a "quick-fix" approach to addiction or substance abuse generally; it contradicts the working paradigm of their profession and threatens to undermine enrollment in (or coverage for) treatment programs.[46]

The cocaine vaccine was developed as a treatment for addiction; its possible non-therapeutic uses would mostly be prophylactic measures to prevent the opportunity for new addictions to develop. Some background discussion about the nature of addiction, therefore, is warranted.

There are different schools of thought about the nature of addiction. Those in the treatment community generally conceive of addiction as a "disease" and focus on the addict's inability—in most cases—to kick their habit on their own. The "disease" school itself tends to have some adherents who focus mostly on psychological dependency for their model of

[45] *See* Washton & Stone-Washton, *supra* note ___.

[46] The researchers also have a concern that traces of the vaccine remain detectable in the patient's urine for up to a year after the last shot. Patients who successfully complete rehab programs and try to re-enter the workforce, therefore, could encounter problems when subjected to on-the-job drug testing; even though their systems would be clean from cocaine, drug testers would be able to spot the vaccine and would know the individual went through a rehab program, presenting privacy concerns for program administrators. Obviously, this privacy problem would be moot if the vaccine were universal. For an excellent discussion of the potential legal, ethical, and sociological harms associated with the anti-cocaine vaccine, see Peter J. Cohen, *Immunization for Prevention and Treatment of Cocaine Abuse: Legal and Ethical Implications*, DRUG AND ALCOHOL DEPENDENCE (1997) 48: 167-74.

addiction[47] and others who focus instead on the physiological chemical dependency.[48] Of course, many treatment programs try to incorporate both, providing counseling and group therapy as well as pharmacological assistance, such as methadone or antidepressants. The language employed by those who embrace the disease model often suggests that the addicts' continued consumption is involuntary.[49]

The "behavioralist" school tends to be on the opposite end of the continuum from the disease model; behavioralists argue that none of the addict's behaviors are "involuntary" in the

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[47] *See, e.g.,* AVRAM GOLDSTEIN, ADDICTION: FROM BIOLOGY TO DRUG POLICY (OXFORD UNIVERSITY PRESS 2001); DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS, FOURTH EDITION (DSM-IV) 176ff (AMERICAN PSYCHIATRIC ASSOCIATION 1994). The the DSM-IV presents a detailed system for diagnosing and categorizing Substance Dependence Disorders generally. The Substance Abuse Disorders are all classified as 304.–, with the suffix identifying which substance is the object of the addiction. The basic definition of an addiction, or Substance Dependence Disorder, is as follows:

> The essential feature of Substance Dependence is a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues use of the substance despite significant substance-related problems. There is a pattern of repeated self-administration that usually results in tolerance, withdrawal, and compulsive drug-taking behavior. A diagnosis of Substance Dependence can be applied to every class of substances except caffeine. The symptoms of Dependence are similar across the various categories of substances, but for certain classes some symptoms are less salient, and in a few instances not all symptoms apply (e.g., withdrawal symptoms are not specified for Hallucinogen Dependence). Although not specifically listed as a criterion item, "craving" (a strong subjective drive to use the substance) is likely to be experienced by most (if not all) individuals with Substance Dependence. Dependence is defined as a cluster of three or more of the symptoms listed below occurring at any time in the same 12-month period.

Id. at 176.

The DSM-IV requires for that at least three symptoms from a list of seven possibilities be present during the same year: 1) tolerance (indicated by either a need for increased amounts or a diminished effect from using the same amount); 2) withdrawal (which can take different forms); 3) the substance is often taken in larger amounts or over a longer period than is intended; 4) there is a persistent desire or unsuccessful attempts to cut down or control substance abuse; 5) a great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects; 6) important social, occupational, or recreational activities are given up or reduced because of substance abuse; and 7) the substance use continues despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance. *Id.* at 181.

[48] *See, e.g.,* J.D. Jentsch and J.R. Taylor, *Impulsivity Resulting from the Frontostriatal Dysfunction in Drug Abuse: Implications for the Control of Behavior by Reward-Related Stimuli*, 146(4) PSYCHOPHARMACOLOGIA 373-90 (Oct. 1999); George F. Koob and Michael Le Moal, *Drug Addiction, Dysregulation of Reward, and Allostasis*, NEUROPSYCHOPHARMACOLOGY 24:9-129, 2001; T.E. Robinson and K.C. Berridge, *Incentive-sensitization and Addiction*, 96(1) ADDICTION 103-14 (January 2001).

[49] Of course, the treatment community, and the larger medical community in general, has some self-interest in labeling addiction as a "disease;" insurers require the appellation before disbursing funds to reimburse the costs of rehabilitation programs. Noting that sometimes vested interests and professional agendas contribute to the stances taken on defining the problem, a federal district court in *Granville House Inc. v. Dept. of Health & Human Services*, 550 F.Supp. 628, 632 (Minn. 1982), stated, "On one level, the debate appears to take the form of turf skirmishes. The American Medical Association (AMA), since 1957, has classified alcoholism as a physical disease. The American Psychiatric Association (APA), in the Third Edition of its *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III), lists alcoholism as a mental disorder."

technical sense of the term; seizures, reflex actions (like blinking), or possibly somnambulism are true "involuntary" actions.[50] Cocaine addicts, in contrast, take conscious steps to purchase cocaine and will seek out a dealer if their usual supplier disappears.[51] They self-administer the drug and cloister or hide—often cleverly—their supply and consumption from authorities. Empirical evidence suggests that addicts respond to market forces such as price increases and (in the case of cigarettes) taxes on the product.[52] Addicts exhibit more self-control or ability to abstain in experimental programs that provide increasing cash rewards each week for clean urine tests.[53] All of these factors tend to argue against addiction as an involuntary activity and hence are used as arguments against the "disease" model. The United States Supreme Court officially adopted this view of addiction in at least one case,[54] but in another case the Courtexplicitly held

[50] *See, e.g.*, Herb Fingarette, *The Perils of Powell: In Search of A Factual Foundation for the "Disease Concept of Alcoholism,"* 83 HARV. L. REV. 793 (1970).

[51] Critics of the "disease" model, with its focus on the involuntary nature of addiction, often point to the fact that most substance abusers never develop serious dependency problems. Moreover, many who suffer from addiction simply rehabilitate themselves at some point through a process of tough choices and some changes to their surroundings. An oft-cited anecdote recounts how soldiers returning from Vietnam simply abandoned their heroin addictions upon their return to civilian life. *See* Fingarette, *supra* note __, at 793 *et seq.*

[52] *See* Gary Becker and K.M. Murphy, *A Theory of Rational Addiction*, 96 JOURNAL OF POLITICAL ECONOMICS 675 (1988); Becker and Mulligan, *The Endogenous Determination of Time Preference*, THE QUARTERLY JOURNAL OF ECONOMICS 112(3), 729-758 (1997), reprinted in GARY BECKER, ACCOUNTING FOR TASTES 50-118 (1996). Although Becker is clearly in the economic or rational-actor school, his conclusions have significant overlap with the behavioralist approach.

[53] Jennifer Rothflieisch et al., *Use of Monetary Reinforcers by Cocaine-Dependent Outpatients*, 17(3) J. SUBST. ABUSE TREATMENT 229-36 (1999); Elias Robles et al, *The Brief Abstinence Test: Voucher-Based Reinforcement of Cocaine Abstinence*, 58 DRUG & ALCOHOL DEPENDENCE 205-12 (2000); Mark P. Reilly et al., *Impulsivity and Voucher Versus Money Preference in Polydrug-Dependent Participants Enrolled in a Contingency-Management-Based Substance Abuse Treatment Program*, 19 J. SUBST. ABUSE TREATMENT 253-57 (2000); Elizabeth Katz et al., *Reinforcement-Based Outpatient Treatment For Opiate and Cocaine Abusers*, 20 J. SUBST. ABUSE TREATMENT 93 (2001); Suzette M. Evans, et al., *Smoked Cocaine Self-Administration in Females and Voucher Incentives for Abstinence*, 10 J. SUBST. ABUSE 143-62 (1998); Michael Kidorf, et al., *Increasing Employment of Opioid Dependence Outpatients: And Intensive Behavioral Intervention*, 50 DRUG & ALCOHOL DEPENDENCE 73-80 (1998) (methadone access made contingent upon securing employment, as opposed to monetary rewards).

[54] The Supreme Court has noted on several occasions that "alcoholism has too many definitions and disease has practically none." *Powell v. State of Texas*, 392 U.S. 514, 522 (1968) (rejecting "involuntariness" defense to public drunkenness conviction)*; Traynor v. Turnage*, 485 U.S. 535, 550 (upholding the Veteran Administration's regulation treating alcoholism as "willful misconduct" in certain cases: "…[E]ven among many who consider alcoholism a 'disease' to which its victims are genetically predisposed, the consumption of alcohol is not regarded as wholly involuntary").

that addiction is a "state of being," which is much closer to the disease model.[55] In other words, the Court historically has used mutually exclusive views of addiction in different cases.

A third school, somewhat in the middle between classic behavioralists (who tend to see addiction as nothing more than bad habit) and the treatment community are Chicago School economists like Gary Becker, who offer a "rational actor" model for addiction.[56] Becker explains addiction in terms of consumers whose current decisions to consume (he does use a model of conscious decision for addiction) are heavily influenced by future values of the good; that is, that their cravings will steadily increase.[57] Richard Posner argued early on that addicts were simply hyperbolic discounters (that is, individuals who place excessive value on immediate gratification and inadequate value on future consequences),[58] but he has more recently refined his model to argue that addicts simply externalize the costs of their consumption onto their future self, which in some sense is a different person (separated by time, at least).[59]

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[55] Robinson v. California, 370 U.S. 660 (1962) (holding that addiction is a "state of being" that cannot be criminalized).

[56] *See generally* Becker, *supra* note ___. Addiction poses one of the most common and serious challenges to the rational-actor model of the law and economics school. It appears to be the ultimate example of purely irrational behavior, of individuals continuing to act in a way they know to be self-destructive, counter-productive, and against their other preferences. The impingement on the most basic assumptions of economic theory made addiction an important project for economic theorists, such as Gary Becker and (to a lesser extent) Richard Posner, to tackle and explain.

[57] *See* BECKER, ACCOUNTING FOR TASTES, *supra* note ___, at 50-118. More recent analysis has found that cocaine has a long-run price elasticity of -1.35. Michael Grossman & Frank J. Chaloupka, *The Demand for Cocaine by Young Adults: A Rational Addiction Approach*, 71 J. HEALTH ECONOMICS 427, 428 (1998). These results suggest that cocaine is in fact quite sensitive to price changes. "A permanent 10% reduction in price would cause the number of cocaine users to grow by approximately 10% in the long-run and would increase the frequency of use among users by a little more than 3%." Id. at 458. These results tend to suggest that Becker's theory of the rational addict are in fact supported by price and usage data.

[58] *See, e.g.*, RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 267 (ASPEN PUBLISHERS, 5th ed. 1998) ("The rational prospective addict knows that he is or will be hooked, so any permanent price reduction (as from legalization of drugs) will reduce not only the current cost of consumption but future costs."); *see also id.* at 529 ("An addict, in economic terms, is one whose demand for the addicting product is a positive function of his past consumption. Addiction is thus a form of habituation. The rational addict will perceive an increase in the cost of the product as in increase in his future rather than merely his present expenses, because consuming the product now will make him more likely to buy it in the future."). *See also* A.L. Bretteville-Jensen, *Addiction and Discounting*, J. HEALTH ECONOMICS 18 (1999) 393-407; George-Marios Angeletos et al., *The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation*, 15(3) J. ECON. PERSP. 47-68 (2001).

[59] *See* Richard Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 STAN. L. REV. 1551, 1557 (1998); also Posner, *Are We One Self or Multiple Selves? Implications for Law and Public Policy*, 3 LEGAL THEORY

Despite the analytical appeal of the rational-actor model for addiction, it does not comport terribly well with recent discoveries in the brain sciences. For example, it has recently been determined that the language faculties in the brain, rather than the faculties used in conceptualizing time, govern self-control and resistance to temptation in general.[60] What economists call excessive discounting of the future appears to be mostly a failure to reach a certain level of abstraction in thought when making a decision.[61]

Perhaps the most sophisticated model to date, or at least the one that best explains all the seemingly contradictory data, is that proposed by Harvard psychology professor Gary Heyman.[62] Professor Heyman's model shows how an addict faces a future of steadily increasing costs for continued consumption: escalating social and familial problems, increasingly deteriorated health, increased risk of trouble with the law, and diminished ability to earn a living. At the same time, the benefits of ingesting a drug decrease as the addict develops tolerance to the substance.[63] Thus, although the addictive substance has a diminishing utility to the addict, the addict's

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23 (1997). Posner adds that the ability to resist immediate gratification in order to enrich one's future is the difference between a childish approach and that of an adult. *See also* BERNARD WILLIAMS, *Persons, Character, and Morality*, *reprinted in* MORAL LUCK 1-19 (CAMBRIDGE 1981). Becker explicitly disavows such a view, based on survey studies (and his analytical model) showing that addicts' present consumption is affected by future consequences, at least those related to permanent changes in the price of the addictive substance. BECKER, *supra* note 84, at 11.

[60] *See, e.g.*, Adam Gifford, *Remembrance of Things Future and Self-Control*, unpublished manuscript (California State University Department of Economics 2000).

[61] Experiments with monkeys involved a game in which different sized piles of food treats were displayed, and each monkey was allowed to pick one. The monkeys invariably picked the largest pile, but in the game, their first choice was always taken away and given to another monkey, leaving the first to select a second, smaller pile. Over time, the monkeys were trained to associate various sizes of treats with the written numerals one through nine. Then, and only then, could the animals "get" the game, and select a small pile first, knowing they would lose it to a companion, in order to have the biggest pile available for the second round. The symbolic or semiotic cognitive function (which enables language in humans) was shown to be the deciding force in playing the game right, not the monkeys' ability to conceive of time and duration. It should be noted that it took nine years to teach monkeys to play this game, and only a few minutes for human children to comprehend it. *See id.*

[62] Gene M. Heyman, *Resolving The Contradictions Of Addiction*, BEHAVIORAL AND BRAIN SCIENCES 19 (4): 561-610 (1996). Heyman summarizes his key ideas as: "(1) The behaviors that comprise addiction are voluntary even though their net consequences are aversive; (2) A voluntary aversive state can exist because the amount of behavior devoted to an activity is a function of its relative (rather than absolute) reinforcement rate (the matching law); (3) Local rather than overall value functions typically determine drug preference; and (4) But there are occasions in which the overall value functions determine preference, as when the drugs are not immediately available and options are under scrutiny." *Id.* at 602-03.

[63] *Id.*

appetite or preference for the substance continues to grow in relation to alternative activities. This disparity between the utility of the drug and the "opportunity costs" of ingesting increases at an exponential rate,[64] until a maximum point is reached, not of satiation, but of physical and temporal capacity to consume all available supplies. This seems "irrational" in the sense that most people use the term, and even "compulsive." Compared to other behaviors, it looks more like it results from outsidecoercion unlike typical choices people make when they deliberate about what they think is best for them. Yet the decision is still wholly voluntary, despite being made from a skewed menu of alternatives.

Heyman explains that personal choices involve a preliminary decision about whether to consider only immediate options or to place the current choice within a framework of clusters of choices.[65] Then the behavior choice is made between the presently available options.[66] Each time that a choice is made only between discreet, immediate alternatives, it raises the likelihood of subsequent decisions also focusing on immediate options.[67] Framing the choice in terms of immediate, discreet options is itself one of the preference-oriented "combinations" that can be chosen.[68]

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[64] One study found that morphine addicts, given unlimited supply, will increase their intake tenfold over the course of a month. Addicts often consume doses that would have proved lethal to them in their initial period of consumption. *Id.* at 572.

[65] Heyman subjects his students to a thought problem involving the selection of restaurants, Chinese or Italian, on a given evening. First, the students compare the utility of each option for that particular decision, and select the one yielding greater utility, based on given criteria. Then the problem is rephrased with preference considerations for how many nights in a row a person would like to eat at the same type of restaurant, which not only changes the equation, but usually changes the result. *See id.* at 570-73.

[66] *See also* Richard A. Posner, *The Ethical Significance of Free Choice: A Reply to Professor West*, 99 HARV. L. REV. 1431, 1445 (May 1986) ("An alcoholic surrenders an important part of his freedom and, it might seem, gets little in return. If the 'choice' to become an alcoholic, or more realistically the assumption of the risk of alcoholism, is made on incomplete information or involves uncompensated costs to third parties . . . then it is not a 'free' choice in the Pareto-superior sense; and perhaps that is the case with addiction.").

[67] Heyman, *supra* note __, at 569-75. This model uses occurrences rather close to one another temporally, within a period of one or two weeks.

[68] Heyman's article refers to these alternatives as the individual's "Bookkeeping Scheme." While economists regularly acknowledge that people choose between combinations of goods, not discreet alternatives, their analysis of market behaviors typically works around discreet-choice models.

Each episode of consumption lowers the future value of almost all alternative or competing goods in the person's life at the same time that it decreases the future value of the addictive good itself. Addictive goods have certain unique traits that tamper with the preference scale. The goods generally provide an intense pleasure or utility that ensues much more rapidly (usually within seconds, or at most minutes) than almost all other sources of pleasure or utility in life.[69] The intoxication process physically delays the enjoyment of other competing sources of good until the intoxication is over, and until any residual hangover subsides, which further discounts their value. Unlike most conventional enjoyments, such as eating a favorite food or watching an entertaining film, intoxicating substances lack the natural inhibiting function of satiation.[70] At some point, you have eaten so much that even one more bite of your favorite dish would have aversive consequences; one more time through your favorite movie would be tedious. Not so with intoxicants, whose consumption undermines the very mechanisms that facilitate moderate use. Physical discomfort from withdrawal symptoms strongly encourages repeated use.[71] A growing body of scientific research indicates that the substances alter the physiology of the brain, specifically the areas that mediate reward and conceptualize future values of goods.[72]

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[69] These effects are highly reliable and unusually immediate. Conventional activities that alter one's mood in a desirable way are not as intense, immediate, or reliable as those produced by drugs and alcohol. Religious ecstasy, sexual fulfillment, or a "runner's high," for example, all require more effort, time, and chance of failure.

[70] *Id.* at 573-76.

[71] It should be noted that the DSM-IV does not consider "tolerance" or "withdrawal" features a *sine qua non* for Dependence Disorders; rather, they are "specifiers." *See* DSM-IV, *supra* note __, at 176-78. Some substances produce far greater "tolerance" or "withdrawal" symptoms than others. The DSM-IV reports that cannabis does not seem to produce any "withdrawal" symptoms. Recent studies, however, have disputed the DSM-IV's position that cannabis does not lead to withdrawal symptoms. One recent study found that two-thirds of cannabis-dependence patients reported withdrawal. The same study found that progression from initial experimentation with cannabis to regular use was quite rapid, matching the progression of tobacco dependence, and surpassing the progression of alcohol dependence. Thomas J. Crowley et al., *Cannabis Dependence, Withdrawal, and Reinforcing Effects Among Adolescents with Conduct Symptoms and Substance Use Disorders*, DRUG AND ALCOHOL DEPENDENCE 50(1998) 27-37.

[72] *See supra* note __ and corresponding text.

The addict, then, is on a track to have exponentially increasing utility in consumption of the addictive substance compared to other alternatives, as the value of competing interests continuously decrease with each incident of consumption. The addict is not being "irrational" in the sense that economists use the term, despite being on a slippery slope toward self-destruction. If anything, the addict is being hyper-rational, choosing between discreet alternatives consistent with predictable preferences. The behavior becomes more and more predictable, more and more inevitable, and less and less likely to be reigned in through thoughtful self-control.

Arguably, Heyman's model fits better with the scientific evidence that self-control is a function of the language faculty of the brain (abstraction of thought) rather than the time/future discounting faculties. The initial decision to treat a choice as a simple selection rather than a complex, multifaceted commitment is what starts the spiraling effect of addiction, at least when it involves a substance that has certain intoxicating, non-satiating, and tolerance-producing effects.

Heyman's model also helps explain the clinical reports that post-recovery relapses are not associated as much with exposure to token amounts of the substance as much as life events that diminish the value of competing goals.[73] Admittedly, the conventional wisdom is that a "tiny sip" primes the addict to plunge into a binge, and many outside the treatment community assume that relapses follow upon stints of "craving." The more common cause of relapse, in fact, is an event that prompts the recovering addict to adopt an "urgency" framework for choices, as "global" goals and objectives cave in to the immediate options.[74]

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[73] Heyman, *supra* note __, at 568-69. Another relapse-inducing factor seems to be a revisiting of the environment or situation associated with the addictive consumption period.

[74] This phenomenon is not only troubling for the "disease" model proponents, who often maintain that "just one drink" is dangerous enough to make relapse inevitable, but also for behavioralists, as there is not a correlation between fits of craving and relapse. This behavior is unique to humans. Laboratory animals usually return to former consumption when "primed" with some alcohol or other substance. Humans, however, can remain resolute in their abstinence even when exposed to a dose of the formerly enslaving substance.

In summary, Heyman's model of rational addiction seems to resolve the dispute about addiction being a "disease," by explaining both the compulsive nature of the problem and the apparent decision-making or volitional activity that occurs. The data from each competing body of literature on addiction is incorporated and reconciled. The model seems to be an improvement upon earlier views of "rational addiction" offered by Becker and others. Choice-cycle of addiction, therefore, is extremely difficult to step out from on one's own, increasingly so as the syndrome progresses. Disincentive measures, making it more costly to obtain or use the addictive substance, can be effective, but only if the cost increase applies exclusively to the targeted substance, and not to other goods or enjoyments in the person's life. Diminished values of goods or combinations competing with the addictive substance will foster addiction instead of abating it.[75] Conversely, enhancing overall value functions for the individual make the habit

[75] *See* Neal Kumar Katyal, *Deterrence's Difficulty*, 95 MICH. L. REV. 2385, 2434-38 (1997). Katyal explains the origin of the concept:

> The classic example, used by Victorian economist Robert Giffen, concerned the Irish potato blight. Before the blight, the typical Irish family ate a diet consisting mostly of cheap potatoes and a little bit of meat, which was considerably more expensive than potatoes. When the blight hit, potato prices rose and the real income of the Irish plummeted. Had potatoes been superior goods, one would expect that the consumption of potatoes would have decreased because their price increased. But Giffen observed that potato consumption increased; the Irish ate more potatoes than they did before the blight, because the high potato price reduced income to the point where meat had become prohibitively expensive. Because there were no available substitutes for meat besides potatoes, the price increase led the Irish to become more dependent on potatoes than they were previously. The positive income effect of the potato price increase had dwarfed the negative substitution effect. There are, therefore, three types of goods: superior goods, where a price increase in the good will reduce consumption of the good; inferior goods, where a decrease in income will increase consumption of the good; and Giffen goods, where an increase in the price of a good will increase consumption of the good.

Id. at 2435-36. Katyal explains that this could help explain why sometimes illegal drug use seems to increase at the same time that sanctions for the drug increase. *See also* Stevenson, *Should Addicts Get Welfare?, supra* note ___ at 219, discussing Giffen goods in the context of using the termination of welfare benefits as a misguided policy tool for forcing drug addicts to rehabilitate; Jensen, Robert T. and Miller, Nolan, "Giffen Behavior: Theory and Evidence" (January 2002), KSG Working Paper No. RWP02-014. http://ssrn.com/abstract=310863 (discussing empirical data of rice and noodles functioning as Giffen goods in certain regions of China); Kris De Jaegher "Understanding Giffen Behavior as an Extreme Case of Asymmetric Substitutability" (November 2003). http://ssrn.com/abstract=474860 (demonstrating that "Giffen behavior can be obtained by considering it as an extreme case of asymmetric substitutability").

more resistible, bringing consumption under the control of overall values rather than "local" or immediate functions.[76]

III. PAROLE

There is a debate about whether parole is a gift or a right. Not surprisingly, the ones arguing that it is a right are usually prisoners (and their advocates). Courts have sent mixed signals, in a sense: the initial granting, denying, or revoking of parole is completely up to the discretion of the designated administrative board—supporting the view that it is a gift from the state. On the other hand, prisoners earn "good time" credits (credit for periods of submissive behavior, not credits toward a "good time" in the future), with an elaborate system for earning and accumulating these credits, and for losing them through deductions for bad behavior. Courts have held that prisoners have a liberty interest in the credits once they have accrued, and deduction cannot occur without some due process. In this sense, then, parole is a right.[77] Probation is not a right.[78]

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[76] Behavioral scientists have recently applied a paradigm called "Momentum Theory" to the phenomenon of addiction, isolating the strength ("mass") of the preference from its rate of response ("velocity"). *See, e.g.*, John Nevin & Randolf Grace, *Behavioral Momentum and the Law of Effect*, 23(1) BEHAVIORAL AND BRAIN SCIENCES 1999. Heyman's explanation, though, more closely resembles the acceleration of a falling object than simple momentum problems, as several factors combine to generate exponential growth in the direction and force of the preference. Acceleration of objects caused by gravitational force is calculated as 9.8(meters)/seconds^2. Using this as a model for decisions and preference, one could analogize that the strength of the compulsion on the addict in a given situation is a factor of the addictiveness of the substance (representing mass), with the time of previous indulgence (either the length of the period of the addiction or the number of times the craving has been indulged) squared. The point is that the reinforcing action of the drug magnifies the likelihood of the next episode of consumption exponentially. The further an object falls, the harder it is to stop. This model explains quite well how addicts could experience a "loss of control," observable to those around them (such as family or treatment providers), while at the same time manifest all the signs of someone making a series of choices.

[77] There is an interesting question about the expectation at sentencing that the period of incarceration will be lower than the actual sentence due to parole—and whether this is taken into account by judges, who might ratchet up sentences accordingly, assuming the defendant will actually serve only a fraction of the time sentenced. Sometimes, things may not go as planned, and the defendant may not get parole. In such a case, one could argue that the defendant is serving a longer sentence than intended, although this argument is unlikely to prevail when the prisoner brings it into court.

In an article discussing the psychology of officials authorized with the governance of criminal justice, Donald Dripps postulates that culpability is often attributed mostly to the personal choices of the defendant, and the

There is almost no debate, though, that parole and probation can be subjected to certain conditions, such as regularly scheduled visits to a parole officer, drug tests, and even restraining orders to stay away from one's victims or certain locations.[79] Restrictions on travel may also apply.[80]

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surrounding circumstances involved are rarely considered, resulting in "punishment out of proportion to a rational measurement of just deserts." Donald A. Dripps, *Fundamental Retribution Error: Criminal Justice and the Social Psychology of Blame*, 56 VAND. L. REV. 1383, 1385-89 (2003).

[78] See Williams v. State, 2003 Tex. App. LEXIS 4529 (Texas App. 2003): "An award of probation is not a right, but a contractual privilege, and conditions of probation are terms of the contract entered into between the trial court and the defendant."

[79] *See* 18 U.S.C. §3583(d) (2003); Edward W. Sieh, *A Theoretical Basis For Handling Technical Violations*, 67 FED. PROBATION 28 (2003):

> In 1973 the federal probation system used various generic requirements as conditions of probation, including: not breaking the law, associates, work, leaving jurisdiction, changes of address, following instructions, and reporting. By 1995 things had changed. Federal statute (Section 5B1.4) provides a current list of recommended conditions for probation and supervised release. The court can impose a condition that the defendant not commit another federal, state or local crime during the term of probation. The court can also impose a condition that the defendant not possess illegal controlled substances. The court may impose other conditions that 1) are reasonably related to the nature and circumstances of the offense, the history and characteristics of the defendant, and the purposes of sentencing and 2) involve only such deprivation of liberty or property as are reasonably necessary to effect the purposes of sentencing (USC § 1994 P.P. 5B1.3). If a term of probation is imposed for a felony, the court shall impose at least one of the following as a condition of probation: a fine, an order of restitution, or community service, unless the court finds on the record that extraordinary circumstances exist that would make such a condition plainly unreasonable, in which event the court shall impose one or more of the conditions set forth under 18 U.S.C. §3563(b)(11). These conditions include not leaving the jurisdiction, reporting, honest reporting and following instructions, meeting family obligations, regular work, changes in employment or residence, substance abuse, associates, field visits, notification of arrest, working as an informer, and notification of inherent risk accompanying record. Further conditions can be placed on the offender concerning possession of a firearm, payment of restitution, payment of fine, access to financial records, halfway house residency, home detention, community service, occupational restrictions, treatment, and electronic monitoring.

See also Griffen v. Wisconsin, 483 U.S. 868, 874 (1987) (holding that conditions placed upon a supervised releasee's liberty do not constitute unreasonable searches or seizures under the Fourth Amendment); United States v. Wright, 86 F.3d 64 (5th Cir. 1996) (holding that the requirement of drug testing imposed upon a person during a period of supervised release, pursuant to 18 U.S.C. §3583(d), is not a violation of the releasee's Fourth Amendment rights).

An interesting comparison can be drawn between the ideas of mandatory vaccinations for parolees and certain courts' attempts to require compulsory contraception as a condition of release. Since the advent of Norplant (a female contraceptive administered via implant under the patient's skin), some courts have been increasingly turning toward this drug as a means to implement release conditions barring conception and as an attempt to prevent child abuse. Janet F. Ginzberg, *Compulsory Contraception as a Condition of Probation: The Use and Abuse of Norplant*, 58 BROOK. L. REV. 979, 979-81 (1992) (arguing that mandatory contraception as a response to child abuse is both unconstitutional and irrational and that the use of Norplant creates the potential danger of governmental interference into personal rights, especially where other less-invasive alternatives exist).

[80] *See, e.g.*, Sieh, *supra* note __, at 29:

> Further elaboration on the conditions of probation is found in the Survey of Adults on Probation (SAP), a survey conducted by the Bureau of Justice Statistics on over 4000 probationers.

Suppose, then, that parolees had to get a shot immunizing them against cocaine (both its euphoric and deleterious effects).[81] A high percentage of prisoners either have drug convictions as part of their reason for being in prison in the first place, or a history of substance abuse. From a practical standpoint, the shots fit reasonably well into the usual schedule of visits to the parole or probation officer and regular drug tests.[82] The convict could receive the shot at the time of the visit, or a certificate from a clinic could suffice as evidence. For that matter, a urine or blood test checking for illicit drugs would also indicate whether the vaccine had been administered.[83]

The utilitarian arguments[84] in favor of this are fairly clear, but not airtight. Cocaine is one of the leading illegal drugs in this country, and is the most significant illegal drug by some

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> Probation conditions are an important feature of probation supervision. The SAP data indicate that 82 percent of probationers are given three or more conditions, which often include monetary penalties, drug testing, employment requirements, and mandatory treatment. Monetary requirements were the most common condition (84 percent). We find that 61 percent were required to pay supervision fees, 56 percent were to pay [sic] a fine, and 55 percent were to pay court cost [sic]. Another 33 percent are required to pay victim restitution. One in ten probationers were restricted from any contact with the victim. One in four were required to perform community service, two of every five were required to maintain employment, to enroll in an employment or educational program. Ten percent of the probationers were under some form of monitoring or restriction of movement. Since so many probationers were convicted of public order offenses, especially those related to alcohol abuse, it is not surprising that two out of five probationers (40 percent) were required to enroll in substance abuse treatment. Alcohol treatment is required more frequently for misdemeanants than for felons (41 percent, compared to 21 percent), while drug treatment is required more often for felons (28 percent compared to 15 percent). Nearly a third of all probationers were subject to mandatory drug testing

[81] Of course, it would not be a single shot, at least given the current state of technology. In order to be effective, the shot would need to be repeated every three months or so, or four times per year. For those who find offensive (or intrusive) the idea of a mandatory shot for those on supervised release, in a given year the cocaine vaccine would present these issues of intrusiveness – arguably a form of paternalism – four times.

[82] *See supra* note ___ and text, indicating that booster shots of the anti-cocaine vaccine are required to establish the required basal level of the blood serum required to effectively reduce the effects of ingestion of cocaine.

[83] The problem with urine tests for those on supervised release is that they are susceptible to fraud in varying degrees. Given that the check-in appointments are often scheduled in advance and predictable, the individual can obtain a "clean" urine sample from a friend (or vendor) and by some subterfuge substitute it for her own. If the testing was for the cocaine vaccine, however, the individual would need a urine sample clean of drugs but tainted with indicators of TA-CD's presence in the body.

[84] The utilitarian approach generally accepts punishment as a means to an ends; i.e. punishment is an evil that can be tolerated only in the case where the future positive outcomes outweigh the bad. *See, e.g.*, Dripps, *supra* note __, at 1423; JEREMY BENTHAM, AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION (1789).

measures.[85] Parole and probation are attempts to give the prisoner a chance to start over and re-integrate into the community; illicit drug use can be grounds for revoking parole or violating probation. The individuals seem to be a high-risk group for drug abuse, given the circumstances. There are also reasons for seeing drug use by this group as particularly serious, as it jeopardizes their reintegration into the community and makes it more likely that they will become entangled again in crime, especially drug-related crime.[86]

Some parolees (or probationers), however, may not want the vaccine. Perhaps they would object to it because they find it intrusive, or they have a fear of needles, or they have a contrary disposition. Perhaps they do not want to be immunized against cocaine because they had planned to enjoy it as part of their limited return to freedom. Whatever the reason, there would inevitably be a group, however small or large, of convicts who are otherwise eligible for parole, and who desire parole, but who find the cocaine vaccine objectionable.

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[85] *See* Anne S. Kimbel, Note, *Pregnant Drug Abusers Are Treated Like Criminals Or Not Treated At All: A Third Option Proposed* 19 J. CONTEMP. HEALTH L. & POL'Y 521, 531 n. 74 (2003) (discussing 1992 Department of Justice report indicating that cocaine was the most common drug found in arrestees, which presents a difficult question – should the "most problematic drug" award go to the drug sold and consumed the most often, the drug that has the greatest gross volume by weight in circulation, the drug with the largest market share of the black market, or the drug most often associated with crimes and criminals?). *See also* Mary O'Flynn, Comment, *The Adoption And Safe Families Act Of 1997: Changing Child Welfare Policy Without Addressing Parental Substance Abuse*, 16 J. CONTEMP. HEALTH L. & POL'Y 243, 247 N.8 (1999) (discussing GAO report indicating that cocaine was the most common drug to which young foster children have exposure); Hon. William D. Hunter, *Drug Treatment Courts: An Innovative Approach To The Drug Problem In Louisiana* 44 LA. B.J. 418 (1997) (identifying cocaine as the "drug of choice" in Lousiana). *But see* Federal Sent. Rep. Vol. 12, Number 6, May/June 2000 Symposium, *Views from the Sentencing Commission, Statement* of Vice-Chair John R. Steer on Drug Sentencing Policy and Trends before the House Governmental Reform Subcommittee on Criminal Justice, Drug Policy and Human Resources at *7:

> In 1992, crack cocaine was the predominant trafficked drug in only three states. However, [sic] by 1996, crack cocaine was the predominant drug type in 17 states (most of which are in the midwest and southeast). According to the most recent data, crack cocaine still is the predominant drug type in 10 states (again largely in the midwest and southeast). Since 1996, however, the number of marijuana cases has increased dramatically to become the most prevalent drug type for the last three years.

[86] These concerns are particularly relevant for those convicted of drug-related offenses and then put on supervised release; but the concerns about drugs addiction (or a new arrest on a drug charge) frustrating the goals of supervised release for non-drug crimes would be pertinent.

Apply libertarian paternalism. This might be a classic case of bounded rationality on the part of the convicts.[87] Assume for the moment that the convicts' objections are not ideological (genuine religious conviction, etc.), but based instead on rumor or misinformation that the vaccine has horrific side effects. Another rumor, already in circulation in some quarters, is that a weaker dose of the vaccine might only partially immunize the subject, meaning that it takes a higher quantity of the drug to get high, which in turn inconveniences the consumer who will have to buy more.[88] The probationer or parolee may also have an irrational fear of needles, or an unreasonable contrariness symptomatic of Borderline Personality Disorder.[89] All of these seem pretty irrational—from our standpoint, the criminal is better off getting the vaccine on two counts. First, the convict would fare better in society without drug abuse or addiction as an impediment. Second, the individual would be better off going free on supervised release, and staying free, than being in prison because of an irrational impulse not to be vaccinated.

This might be, therefore, a good case for libertarian paternalism to step in. Sunstein and Thaler would point out, of course, that paternalism is already afoot to the extent that the vaccine is required; the defendant must choose between accepting an unwanted vaccine and staying incarcerated. The vaccine could be merely optional for prisoners, but that could mean it would go largely unused. There is some paternalistic justification for requiring it; the defendant would be better off cocaine-free, especially given the obstacles that probationers and parolees already

[87] A traditional economic approach would assume instead that the parolee's personal utilities are merely different from what we think they should be, or what seems to us to be in their long-term best-interest; but that does not make it irrational per se, just a function of different priorities (reintegration into the community being lower than other things, for example). Without concerns about the parolees being victims of their own bounded rationality, of course, the libertarian-paternalist tension dissipates, becoming instead a matter of individual self-interest versus societal welfare.

[88] *See* Kosten et al., *supra* note ___, at 1197 ("However, a therapeutic vaccine based on active-immunization has the potential to provide long lasting clinical efficacy for relapse prevention after administration….").

[89] *See* Goldstein, *supra* note __, at __.

face in reintegration.[90] There are also utilitarian reasons strong enough to stand even without the paternalistic concerns: deterrence (or prevention) of future crime, reduction of recidivism rates (which involve not only the cost of the new crime but also the social cost of reincarcerating the criminal), and helping guarantee the success of rehabilitating the criminal into a productive member of society.[91]

I mentioned above that the utilitarian arguments were not airtight. Here is one reason: the parolees and probationers are already subject to regular drug tests in many cases, so they know they cannot use cocaine without getting caught and jeopardizing their supervised release.[92] The cocaine vaccine is arguably redundant in this case. Of course, from a paternalistic perspective, the vaccine saves the individual from sabotaging her limited freedom through simple weakness of the will.[93] In this sense it is like requiring airbags in automobiles simply because people will not wear their (also required) seatbelts.

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[90] Paternalism does seem to be an important issue for probationers and is in constant tension with libertarian ideals. Sieh reports that many probation officers are loathe to bring their assigned probationers to court for minor violations. *See* Sieh, *supra* note __, at 28:

> Many probation officers are hesitant to bring a probationer to court for a violation. First, a new charge may be unfounded and dismissed by the court, which would mean a waste of time. Second, the officer may seek time to develop an alternative treatment plan. This is important if the officer wishes to maintain the relationship with the probationer and is concerned that a hearing will reverse the process. Third, the officer may feel somewhat responsible for the client's failure. This opinion certainly can develop out of recognition of the lack of time available for each case with rising caseloads and greater numbers of pre-sentence reports. Interviews conducted by the author with over 50 probation officers reveal that not all officers are likely to be concerned with violating the probationer and that something else might be happening.

This highlights a complicating feature of probation and parole, at least regarding issues of paternalism: the probation officers who deal directly with the subject may be motivated by different concerns than other policy makers, such as courts and legislatures; while the latter two groups can create far-reaching rules, the individual officer has tremendous discretion about reporting, monitoring, etc.

[91] *See supra* note ___ and accompanying text on utilitarian views of punishment and social consequences. Of course, this is not a good case for discussing opt-in or opt-out measures, like Sunstein and Thaler (and the other authors in this field) discuss, as with 401(k) plans and other deferred-tax benefits (like parking near the law school). This is a case where any type of option will yield the same result—avoidance. Similarly, there is not much of a "framing" issue here, as the vaccine is an either-or choice, as opposed to selection from a menu of options, as might be the case with insurance carriers.

[92] *See supra* note ___ and accompanying text.

[93] For example, Sieh reports that drug violations are frequent, and that probation officers tend to let minor violations accumulate or build up before reporting the violations to court –at which point the consequences for the

Airbags may be necessary, however, if the seatbelts really are not in use. Returning to supervised release, it may be that some are beating the system, either by cheating on the drug tests (using someone else's urine, for example) or by simply disappearing and eluding detection indefinitely.[94] In these cases, the scales are weighted more with social utilitarianism than with paternalistic concerns. In general, the utilitarian concerns in this case are mostly focused *not* on the harm to the convict, but to third parties (victims of future crimes) and societal costs (of law enforcement and punishment).

So far, then, we have paternalistic concerns for the parolee's success and utilitarian concerns about the cost of possible recidivism. Now let us introduce a third motivator, retribution. The subject group consists, for the most part, of criminals. They have made decisions in the past that

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probationer may be rather severe. He quotes one officer as follows (illustrating how court delays and discretion of the officers interact to create an interesting dynamic):

> If they are not reporting they are not going to counseling; if they are not going to the clinic, they are not following up any other conditions of probation. Sometimes a violation is the only way to get their attention. He has a couple missed reports, he has a few positive urine tests for cocaine, marijuana, and you go into court for a violation on all of these things. That process will take you a month and a half. By the time that you get an arraignment, lawyer is assigned, you come back, conduct a hearing, adjournments, usually he is out because they set bail. Now in that month and half process, if you chose to refer him back to the clinic, you start working with a pre-existing relationship with the clinic, you know some of the counselors and you ask what do you think of this guy's chances? If I get some positive feedback from the counselor, even if I am in a violation process on the guy, I will send him back there. If during that violation he does pretty well, you have got some options open to you.

Sieh, *supra* note __, at 29.

[94] *See generally id.* at 28-30, reporting that violations are very frequent and often go unreported. Despite the underreporting, the failure rate for probation has increased:

> The rates of recidivism of probationers were historically low due to the selection of persons who were likely to succeed on probation. Today, however, we find felons on probation who have much higher rates of recidivism. Based on federal data alone, there were 20,956 probation terminations: 81 percent had no violations, 10 percent experienced technical violations, 3.5 percent were charged with new crimes, and 5 percent had administrative case closures. At the federal level, we are dealing with 2,900 technical violations during any one year. Some officers violate as many as 25 probationers per year, some of whom are absconders.

Id. at 29. It is unclear whether underreporting exacerbates this problem (by not nipping in the bud a pattern of increasing violations), or if the statistics would be even more alarming if reporting was more consistent.

were not only bad for them, but that violated the law, probably violated social norms, and often risked (for no good reason) harm to others. There is a resulting mistrust.[95]

This mistrust is based on the individual track record of each defendant, not the traditional economic presumption that people naturally tend to act in their own immediate self-interest rather than the collective greater good. This non-economic form of mistrust is partly Bayesian: these individuals appear untrustworthy because they have already demonstrated that they make some very bad decisions. This raises the likelihood, or the perceived likelihood, that they will do so again. The cocaine vaccine provides a way to head off some future bad decisions.

The past decisions[96] were "bad," however, in more than one sense. First, they were bad from the standpoint of the defendant's long-term self-interest (paternalistic concern); second, they were bad according to the harm principle (ignoring for the moment the fierce debate about drug laws in this regard). In addition, there is a moral component here, the moral judgment that some commentators believe is the essential difference between Criminal Law and Torts.[97] There is a stigma in being a convict. There is something more condemnatory about saying a defendant is "guilty" than saying the defendant was "negligent" or even "liable." Their decisions were "bad" in the sense of being "blameworthy," which is different from a utilitarian concern.[98]

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[95] *See* Dripps, *supra* note__, at __ (discussing this distrust as it relates to the fundamental retribution error and criminal justice).

[96] This is referring to the decisions that originally landed them in jail.

[97] *See, e.g.,* JOSHUA DRESSLER, UNDERSTANDING CRIMINAL LAW __ (2nd ed. 2003). The point here is not whether morality *should* be an aspect of criminal law—such a question is outside the scope of this article—but rather to recognize that it often *is* already, as seen by the social stigma that usually attaches along with a conviction.

[98] Of course, some commentators argue that the utilitarian value of criminal sanctions operated through shame or stigma, rather than a direct fear of incarceration or fines. *See generally* Dan M. Kahan, *What Do Alternative Sanctions Mean*?, 63 U. CHI. L. REV. 591, 630-53 (1996) (arguing that shame-based sanctions can influence public norms that condemn criminality); Note, *Shame, Stigma, And Crime: Evaluating The Efficacy Of Shaming Sanctions In Criminal Law*, 116 HARV. L. REV. 2186 (2003). My discussion of the utilitarian issues here deals not with the costs and benefits of punishment itself but rather with attaching inoculation with the cocaine vaccine as a condition of supervised release or parole. Shame and stigma in this setting are important because they influence the attitudes of policymakers about how much autonomy (in matters such as inoculation against cocaine) parolees and probationers deserve. This, in turn, brings up a larger issue that Sunstein and Thaler did not address, namely, that paternalistic moves by policy makers are not always driven by condescension toward the capacity of

Mistrust of parolees, then, has an ambiguity between a simple Bayesian mistrust and moral mistrust. Beyesian mistrust says past patterns predict present probabilities (going into the future as well). Moral mistrust says that a decision of which we disapprove deprives one of entitlement to normal levels of trust or benefit of the doubt.[99] Sunstein and Thaler talk about the bounded rationality of certain subjects, indicating a type of mistrust regarding the subject group's capacity to make the objectively optimal decision.[100] This is different from moral mistrust, or even from moral failure as another category of the subject group's bounded rationality. The benevolent paternalists, though, are also subject to bounded rationality, and moral judgments may be one form of this that the model fails to take into account.[101]

There are several unanswered questions here. First, there is the question of whether bad moral judgment by the subject group qualifies as a type of "bounded rationality" that merits some paternalistic intervention. Second, there is a question of whether moral sentiments—or better, judgmental feelings, although not necessarily in the pejorative sense—constitute a type of "bounded rationality" for the group in charge. Third, there is a question of whether libertarian

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the subject group to make good decisions, but also whether the subject group "deserves" to make their own decisions.

[99] We may withhold trust in such cases as a way of punishing the person (tit-for-tat), or perhaps we believe that one moral failing, however incidental and singular, represents a deeper character flaw, and we know that it is usually difficult to extirpate bad character traits. This latter version may be a type or Bayesian morality: once you have done certain bad things, there is a higher likelihood of more to come.

[100] *See generally* Sunstein & Thaler, *supra* note ___ at 1167-69.

[101] The moral aspect of judgments about probationers can work in different ways depending on the level of the decisionmaker. Sieh recounts one probation officer who related that reporting violations was a frustrating obstacle course through the conflicting value judgments of the other state agents in the process:

> Violations are the most frustrating part of this job. It is extremely time consuming. When he violates probation he is violating the judge's order and yet the judge says we have a probation officer who is accusing you of having violated your probation. He gets a lawyer and we go to trial. The DA prosecutes and I am the witness for the prosecution. The judge is trying to decide if I am telling the truth or the probationer is telling the truth. So a lot of times arrangements have been made beforehand. Then it is a question of what will we do. Fifty percent of the time or more the defense attorney talks the judge into continuing him on probation. The defense attorney's thinking is just the opposite of mine. His thinking is, that if the judge didn't lock this guy up for his original crime, why would you even consider locking him up for something as insignificant as not reporting to a probation officer. They make me look like a schmuck.

Sieh, *supra* note __, at 29.

paternalism should contain some sort of rule to limit intervention by those in charge in cases where judgmental moral attitudes are likely to influence policy.

The libertarian paternalism model does not presently have guidelines for situations where the policy makers themselves are subject to bounded rationality. This will come up again in the context of welfare recipients, but in a different form that is less condemning of the subject group.

More generally, some scenarios have telltale signs for generating bad decisions by the *policy makers*, rather than by the subject group. An example would be cases where the decisionmakers are tempted to act out of self-preservation, particularly when the stakes are high. These situations can generate policies that others later regret: cover-ups are a good example. Cover-ups of sexual misconduct by priests, of financial skullduggery at Enron, or of the toxicity of the airborne dust at the asbestos plant, all illustrate paternalism that cloaked itself (temporarily, at least) in benevolence but was tainted by the director's self-preservation instinct. Sunstein and Thaler's model would benefit from some guidelines to prevent such abuses, such as special rules limiting paternalism more in these cases.

Morals present a more challenging problem than self-preservation. Who decides that the policy makers' morals are right or wrong? There seems to be little accountability here,[102] but

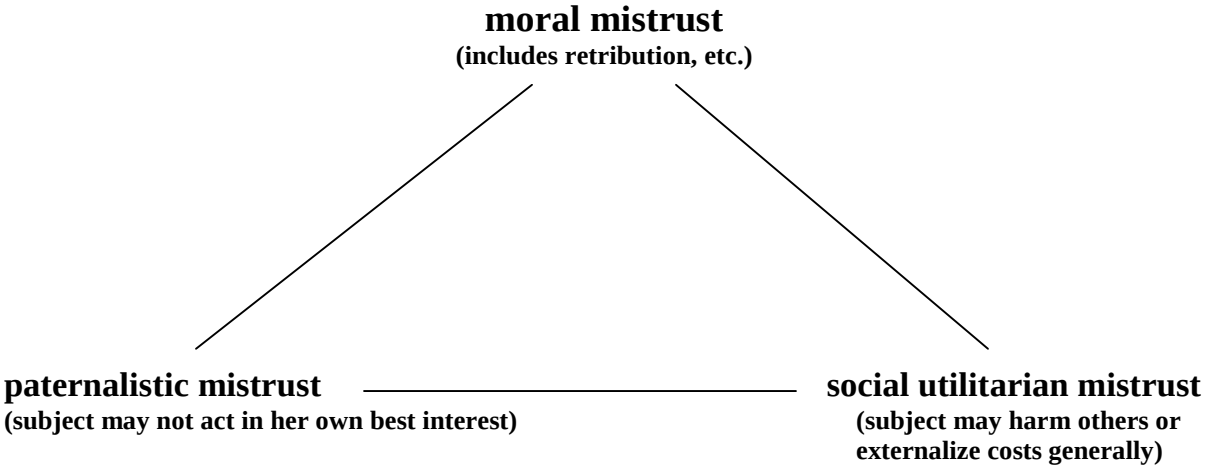
[102] The fact that there is little accountability for individual decision makers' morals is a general problem for the libertarian paternalist model; and it takes on special significance in the realm of probation, where individual officers have enormous discretion in monitoring and enforcing court-ordered conditions of parole. *See, e.g., id.* at 31:

> Public service workers who interact with citizens in the course of their jobs and who have substantial discretion in the execution of their work are called street-level bureaucrats. The concept of regulatory uncertainty implies a forced tolerance for individual conduct. This tolerance is exhibited in the choice of harmful activity subject to control. For example, a probation officer is not able to completely restrict all of the possible illegal activities available to a probationer. Second, regulatory agencies are charged with a particular policing mission. However, there is still the question as to the objective: Should the mission be eradication or the repression of the problem? If the behavior is not considered serious, is it to be repressed and handled with a measure of discretion? How much attention each violation receives depends on the resources available. It would seem that officers use their discretion not so much to deter the offender but to regulate the offender's behavior, done in full recognition that rehabilitation may not be needed or always possible and that acceptable levels of incapacitation can only be achieved within certain

disallowing any moral judgments is the same as saying it is wrongful to apply those judgments to policy—which in itself is a moral judgment, of course. It is not clear that those in charge should withdraw or refrain from meddling simply because the situation touches on morality. At the same time, libertarian paternalism does not have a good answer for cases where the mistrust of the subject group might be based less on utilitarian concerns than on moral judgments about what the subject group did in the past, or how much autonomy they deserve.

Figure 1 helps illustrate my point.[103] Those making decisions about whether to require individuals on supervised release to be vaccinated against cocaine can have three types of motives besides a simply, objective analysis of the parolee's best interests.

Fig. 1.



limits. Rules, however, may be impediments to effective supervision, in that individualized justice would indicate a different course of action than the one called for by policy.

Of course, if a court ordered the cocaine vaccine, it could be a tool for limiting this delegation of authority to the probation officer. On the other hand, it is possible that the probation officer himself could order the vaccine even where a court did not do so, especially in jurisdictions that allow the most discretion for these officers.

[103] For a terse discussion of similar issues, especially in light of the Comprehensive Crime Control Act of 1984, *see id.* at 30 ("[P]robation is considerably different from the [previous] dichotomous enforcement-social welfare model . . . [The Guidelines] now set the tone and the probation officer-as-caseworker role is no longer predominant. At the state level, the recent language of the performance-based measures emphasizes risk assessment, resource allocation, and internal assessment.").

Sunstein and Thaler, as well as the authors of the "asymmetric paternalism" article, focus entirely on paternalistic mistrust. Societal utilitarian mistrust is not truly paternalistic, although an extreme form of libertarianism might say so. It is present, however, as a consideration that must be balanced with the paternalistic concerns; the thesis of asymmetric paternalism is that intervention is appropriate when the scales between the two bottom considerations tip (even slightly) to the left.[104] Vaccine and immunization questions will often present both of these considerations, even when substance abuse is not an issue. When it comes to those on supervised release, however, I have argued that the paternalist mistrust is somewhat weak, as are the utilitarian concerns (especially given the redundancy issue). The moral mistrust is quite strong in this case and would tend to dominate over the other two; hence it is stationed on top. This is not to say that the three values in Figure 1 are in tension; they may be three different reasons for doing the same thing. It is problematic to apply the libertarian paternalism model where moral mistrust dominates.

The moral mistrust issue could make the cocaine vaccine a popular condition of supervised release. The fact that it would be a stipulation of a benefit that many see as undeserved, rather than simply forced on all inmates, removes the coercive element enough for the moral mistrust to cloud the paternalist judgment.[105]

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[104] *See* Camerer et al., *supra* note __, at __.

[105] It could also be appealing to decision makers at the other end of the moral continuum, that is, those motivated mostly by pity or paternalism toward the probationer. *See* Sieh, *supra* note __, at 29:

> With the recent history of getting tough on offenders, one would expect violators to be given jail time when they fail to comply with the conditions of probation. This is not true. It seems clear that probationers are given new conditions when they have problems during supervision. If the offender is convicted of a new offense, we find that offenders are likely to be given a new condition (37 percent) more frequently than incarcerated (28 percent). Those arrested for a new offense are more likely to receive new conditions over jail time, too. Of offenders who abscond, 25 percent received jail time, but slightly more (28 percent) were given new conditions. We see a reluctance to put offenders in jail for their noncompliance. To some degree we see a sizeable proportion of offenders who experience no new conditions in response to their technical violations. This pattern continues with positive drug test, failure to appear, failure to pay fines, failure to attend and complete program, and other technical violations. This data indicates that the

This raises a final issue regarding parolees and probationers, at least for the Sunstein-Thaler model: where the subject group are recipients of some benefit that policy makers view as an act of pure grace, an undeserved gift—like supervised release—those in charge are likely to feel more latitude with paternalistic interventions. This is an important point for revising the model. The model does a good job of avoiding elitist attitudes that focus on the relative decision-making abilities of the subject group, and focuses instead on particular situations where decisions go wrong. There are still aspects of the subject group's status—apart from decision-making ability—that will affect how quickly the ruling group moves toward intervention or limitations on choice. Where the subject group appears to be on the receiving end of an undeserved gratuity, those in charge will feel free to make some other unrelated decisions for the subject group that are attached as conditions of the gratuity.[106] These unanswered questions about the moral failings of subject group members triggering libertarian paternalism, and the moral judgments of the control group influencing their decisions, would arise in a variety of contexts unrelated to criminal law or drugs; the cocaine vaccine and supervised release simply serve to highlight the point.[107]

> courts are approaching violations not as a means to discipline the offender but as a means to gain the offender's compliance with the law.

The cocaine vaccine would fit well with this agenda, by providing a means of "ensuring" rehabilitation of good behavior without re-incarcerating the defendant, which many seem to want to avoid.

[106] Apart from the parolee-probationer setting, managers or owners of firms could feel this way about bonuses, keeping positions after a merger, etc.

[107] A related issue for supervised release, albeit outside the scope of this article, is the increasingly unfettered discretion delegated to probation officers, who not only decide whether to report technical violations, but often modify court-ordered conditions of probation on their own, informally:

> The American Probation and Parole Association believes officer authority to impose conditions of supervision is valid and deserves support, to promote consistency in the response to violations. In a recent survey (APPA, 2001) of APPA members, fewer than half (46 percent) of the respondents indicated that field officers have the authority to modify conditions of supervision. However, a substantial number (69 percent) felt that officers modified conditions informally. It is apparent in some jurisdictions that line officers feel justified in altering some aspects of an offender's supervision strategy, regardless of whether this is a matter of policy. Two states, Oregon and South Carolina, have programs that provide specific guidelines for the officer to increase imposed sanctions.

Besides the problem of the moral mistrust levied at parolees or probationers, some policy makers (or the voting public) could also view supervised release as a type of public "benefit," akin to welfare. Welfare benefits, whether in the form of cash assistance or special opportunities like supervised release, come with an increasing number of conditions and expectations. The cocaine vaccine could be an addition to this list.

IV. WELFARE RECIPIENTS

Welfare and related programs for the poor are an important part of public policy and a significant part of the work of certain administrative agencies.[108] These programs, especially when they involve direct cash assistance, regularly come with numerous conditions attached. There are elaborate conditions for eligibility[109] and enrollment,[110] and there are extraneous

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Sieh, *supra* note __, at 30. If courts develop a concern about officers being too lax and too difficult to control, the cocaine vaccine could be viewed as a remedy for ensuring greater compliance with the court's intended conditions.

[108] *See, e.g.*, Statement of Hal Daub, Chairman, Social Security Advisory Board, *Reforming the Disability Insurance and Supplemental Security Income Disability Programs*, Presented to U.S. House Ways and Means Committee, Subcommittee on Social Security, June 11, 2002, at: www.ssab.gov/NEW/Testimony/DaubJune11.pdf ; Social Security Advisory Board, *How SSA's Disability Programs Can Be Improved*, 1-10 (August 1998), available at: www.ssab.gov/NEW/Publications/Disability/reports6.pdf (presenting statistics about the unanticipated growth of SSI within the Social Security system). Some commentators have suggested that the mushrooming growth of assistance programs for the poor is not only a function of the "free money" idea, but also the fact that enrollees are often immediately eligible for Medicaid. In other words, the need for affordable health insurance among the poor may drive the growth of cash assistance programs as much or more than the lure of "easy" money. *See, e.g.*, Aaron Yelowitz, *Why Did the SSI-Disabled Program Grow So Much? Disentangling the Effect of Medicaid*, 17 J. HEALTH ECON. 321, 322-49 (1998) (demonstrating that programs triggering eligibility for Medicaid grew faster during the 1990's that other federal welfare programs, such as AFDC, apparently due to this connection); *see also* Stevenson, *supra* note __, at 190.

[109] For a very recent and insightful treatment of this subject, *see* David A. Super, *Offering an Invisible Hand: The Rise of the Personal Choice Model for Rationing Public Benefits*, 113 YALE L .J. 815 (2004) (focusing on the shift in program policy toward the choices and incentives of the recipients, rather than neediness, equality, etc.). traditional conditions have included being below a certain income level, being too disabled for work, etc.

Following the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996, claimants have more selection in the benefits they receive, with different benefits or programs carrying different conditions. One can logically see how economic incentives could serve to facilitate widespread use of the cocaine vaccine among welfare recipients. Those who are drug free would have a particularly advantageous position, and may gladly take the vaccine to ensure increased welfare benefits, especially monetary benefits. Administration of the vaccine could help the public feel assured that these specific welfare recipients would not be squander scarce public resources on cocaine.

conditions for continued receipt of the program benefits.[111] These include frequent recertification of financial or medical eligibility, attending job training seminars, applying for employment opportunities, retaining custody of one's children, avoiding felony convictions, avoiding pregnancy,[112] and avoiding substance abuse and addiction.[113] Enrollment in substance abuse rehabilitation programs has also been a condition of receiving certain benefits, particularly in the federal system.[114]

From time to time, there are highly-publicized examples, or at least accusations, of abuse of the benefits, and one of the strongest accusations is that welfare recipients are squandering their benefits on drugs.[115] For this reason, it seems reasonable that policymakers will consider making the vaccine a condition of receiving welfare benefits.[116] Here, the mistrust is more the type associated with classical economic modeling: policymakers might worry that welfare recipients will waste scarce public resources (using the benefits to subsidize the initial cost of

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[110] Programs often require documentation of income, monthly expenses (rent receipts and utility bills), and medical records.

[111] *See*, e.g., Dandridge v. Williams, 397 U.S. 471 (1970) (upholding limits on dollar amounts of AFDC grants per family); Shapiro v. Thompson, 394 U.S. 618 (1969) (upholding statute denying welfare benefits to state residents of less than a year).

[112] Some states include in their Temporary Family Assistance regulations a deduction in the benefits paid for children conceived while enrolled in the program.

[113] The *Contract With America Advancement Act of 1996* eliminated SSDI/SSI and Medicare/Medicaid coverage for those whose drug or alcohol addiction is a "contributing factor material to their disability." P.L. 104-121, March 29, 1996. Detailed provisions were included for the phase-out of those already receiving benefits, pursuant to normal due process hearing requirements, and the implementation of strict rules for new applicants, which are not terribly relevant to the discussion here. *See also* Stevenson, *supra* note __, at 191-94; Anti-Drug Abuse Act of 1988, § 5101, 42 U.S.C. § 1437(d)(1)(5) (1990).

[114] Reacting against the growing numbers of addicts receiving benefits, in 1993 Congress included special provisions addressing DA&A in the *Social Security Independence and Program Improvements Act of 1994*. See P.L. 103-296. Section 201 of P.L. 103-296 placed a three-year time limit on SSI/SSDI benefits to recipients whose cases were flagged as DA&A. SSDI recipients were now included in the treatment, monitoring, and representative-payee requirements previously applicable to only SSI recipients, and failure to comply with treatment resulted in suspension of benefits.

[115] Christopher M. Wright, *SSI: The Black Hole of the Welfare State*, Cato Institute Policy Analysis No. 224 at 5 (April 27, 1995) available at http://www.cato.org/pubs/pas/pa-224es.html; *see generally* Note, *Dethroning the Welfare Queen: The Rhetoric of Reform*, 107 HARV. L. REV. 2013 (1994).

[116] Mandatory drug testing for welfare recipients, has not always survived constitutional challenges. *See, e.g.*, Marchwinski v. Howard , 113 F. Supp.2d 1134 (E.D. Mich. 2000). *See also* Michael D. Socha, *An Analysis Of Michigan's Plan For Suspicionless Drug Testing of Welfare Recipients Under the Fourth Amendment "Special Needs" Exception*, 47 WAYNE L. REV. 1099 (2001) ("the suspicionless drug testing of welfare recipients and applicants does not amount to a 'special need' exception to the Fourth Amendment").

addiction, the cost of the cocaine itself). In addition, policymakers could fear that recipients would lack normal incentives to show self-restraint to avoid cocaine addiction, because society subsidizes their unproductiveness (which is one of the other main short-term personal costs of addiction) via welfare payments.[117]

Of course, from a paternalistic view one could argue that the vaccine is in the best interest of the individuals, assuming it cannot hurt them and can help some of them. The paternalistic concerns here, however, will be mixed with other attitudes, such as the belief that welfare recipients should be subjected to more limitations on their personal autonomy because of *mistrust*—in this case, the rational-actor mistrust associated with moral hazard and adverse selection. Sunstein and Thaler do not discuss this problem very much—what those in charge should do when a policy appears blatantly paternalistic, but is also justifiable due to fears (however valid) about moral hazard and adverse selection in the program. In addition, as with parolees and probationers, there is potential for yet another form of "bounded rationality" within the leaders themselves, namely, reciprocity instincts about welfare and sharing. This section will first discuss the moral hazard issue and then consider the reciprocity problem.

[117] For a thorough discussion of possible constitutional challenges to mandatory drug testing for welfare recipients, *see* Corinne A. Carey, *Crafting A Challenge to the Practice of Drug Testing Welfare Recipients: Federal Welfare Reform and State Response as the Most Recent Chapter in the War On Drugs*, 46 BUFF. L. REV. 281 (1998) (arguing that random drug testing of recipients violates the Fourth Amendment's rule against unreasonable searches and seizures, as well as the due process and equal protection provisions of the Fourteenth Amendment). While Carey is probably not alone in suggesting that drug testing welfare recipients is unconstitutional, the Supreme Court has not clearly settled the question. Presumably, many of the commentators who find drug testing for welfare recipients unconstitutional would hold a similar position on a mandatory cocaine vaccine for welfare recipients, for essentially the same arguments (with the additional argument of the right to bodily integrity). Those favoring mandatory drug testing for this group, however, seem likely to apply many of the same justifications to having the cocaine vaccine as a condition for cash benefits. *See also* Philippa M. Guthrie**,** *Drug Testing And Welfare: Taking The Drug War To Unconstitutional Limits?* 66 IND. L.J. 579 (1991) (concluding that conditioning subsistence benefits on drug testing would be ineffective and unconstitutional).

A perennial concern with public assistance (welfare) is moral hazard:[118] The benefits might create a perverse incentive to be careless about substance abuse, thus increasing the risk of destructive addictions. The idea is that there is a decreased incentive for recipients to rehabilitate or refrain from substance abuse, as the system artificially props them up.[119] Of course, the moral hazard concerns about welfare relate not only to substance abuse, but to disincentives to work in general.[120] Applied to the cocaine vaccine as a condition of welfare, the moral hazard concern is primarily utilitarian; it focuses on the potential for public resources going to waste. Such concerns fit awkwardly into the context of programs that are largely paternalistic. Assistance to the underprivileged is inherently paternalistic, albeit in the most benevolent sense of the word.

Adverse selection refers to the unfortunate fact that the people most likely to incur losses often want insurance the most, while the safest individuals need it less and begrudge the fact that they must subsidize other people's carelessness. [121] When the people who need insurance the least opt out, it skews the risk-averaging and law of big numbers, which is the real advantage of

[118] For a more detailed discussion of the moral hazard concept and the fallacies of applying it to welfare recipients who are addicts, *see generally* Stevenson, supra note ___ .

[119] There are also policy concerns that the benefits indirectly pump funds into the illegal drug industry. For example, the Cato Institute's influential Policy Analysis Paper No. 224, *"SSI: The Black Hole of the Welfare State"* asserted: "SSI pumps money directly into the drug economy." *See* Wright, *supra* note __, at 12 ("The need for a government-administered disability insurance program has never been established and is particularly questionable given that a market for private disability insurance already exists."). The moral hazard problem was the underlying theme of the political bromides leading up to the changes in the rules for SSI/SSDI in 1994 and 1996. The legislative history is replete with anecdotes of purported abuses of the system, including "junkies" who designate their suppliers as their "representative payees," and alcoholics who designated their local watering hole as the mailing address for their benefits checks. *See id.* at 10-13.

[120] *See* Lars Soderstrom, *Moral Hazard in the Welfare State*, in Herbert Giersch, ed., REFORMING THE WELFARE STATE 25-46 (Springer 1997); *see also* Gilens, *supra* note 115 at 185, noting that survey respondents were actually *less* insistent on work requirements for welfare recipients for "single parents with drug or alcohol problems." Tom Baker summarizes the usual rhetoric in this regard: "Because all insurance affects incentives to reduce loss, welfare will increase poverty . . ." Baker, *supra* note 79, at 239. Note that when insurance was first widely marketed in the nineteenth century, many criticized it as a form of gambling, an encouragement to crime, and an interference with Divine Providence. *Id.* at 255-260.

[121] *See* Priest, *supra* note 126, at 1548 ("Where insureds, ex post, can affect the level of claimed losses, the variance in expected risks increases. Those individuals who are less likely to gain from exaggerated visits to doctors or from more extensive hospitalization will drop out of the pool if full coverage is offered.").

insurance, making it less feasible financially.[122] In the welfare arena, adverse selection is an issue because those most likely to be long-term cases, due to their inability to engage in self-help, are more likely to sign up in the first place. The conventional wisdom is that needy individuals are the most motivated to re-enter the workforce and are therefore more likely to do so; they are less likely to submit to the hassles of applying for benefits and the ongoing conditions. Substance abuse complicates the picture: there may be a disproportionate number of addicts or substance abusers in the pool of applicants, because they are disproportionately in need of income subsidies. A belief that this is true would counsel in favor of requiring the cocaine vaccine for welfare recipients; the assumption is that the subject group is self-selected to have more problems with addiction. This is a mix of utilitarian concerns (the recipient pool is self-selected to wasteful squandering of benefits on drugs), but it is also a paternalistic matter (welfare helps isolate and identify large numbers of the people most in need of help with their addictions, and the cocaine vaccine could help them significantly).

There are problems with applying moral hazard and adverse selection to welfare benefits. First, the empirical evidence suggests that the predictions of the moral hazard model do not materialize as expected.[123] Second, the underlying assumptions about the nature of addiction and free will are subject to dispute,[124] and these greatly affect the applicability of incentive-based models for predicting behavior.

The idea of requiring the cocaine vaccine of welfare recipients—especially when justified in part by moral hazard and adverse selection concerns—highlights again a missing piece in the

[122] A new study, importantly, has challenged the traditional view of adverse selection as a problem for insurance overall, which would also be applicable in the welfare context. *See* Peter Siegelman, *Adverse Selection in Insurance Markets: An Exaggerated Threat*, Fordham Univ. Research Paper 27, available at http://ssrn.com/abstract=434604 (2003) (demonstrating that the empirical basis for adverse selection concerns is limited, the underlying theory problematic, and alternative solutions more plausible).

[123] *See* Stevenson, *supra* note __, at __.

[124] *See supra* notes _____ and accompanying text.

libertarian paternalism model. Many times the choices provided to the subject class will be in a context where issues of autonomy and "bounded rationality" are intertwined with concerns about moral hazard and adverse selection, the latter being itself a mix of paternalistic and utilitarian concerns. In these cases, the historical tendency seems to be toward more paternalism and less libertarianism, that is, less autonomy of choice for the subject group.[125] Whether Sunstein and Thaler would find this justifiable is unclear. At the least, it complicates the application of the model. A further complication is the common assumption, not always correct, that individuals needing public assistance have a track record of poor decisionmaking, as evidenced by their inability to be self-sufficient.[126] This is the classic scenario that usually prompts more paternalist policy moves, but such moves are difficult to separate from simple caution about people taking advantage of the state's benevolence.[127]

Another form of "bounded rationality" for the decisionmakers that can complicate the model is reciprocity. Welfare reform movements in the last decade have reflected a strong reciprocity phenomenon, but it is questionable whether reliance on the "reciprocity" inclinations of policy makers and their voting constituents adequately addresses the problems of poverty, or simply exacerbates them.[128]

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[125] Under Siegleman's theory, this heightened paternalism may actually mitigate against the adverse selection problem, and therefore the moral hazard problem; the people most likely to "abuse the system" may opt out completely because they find the conditions too distasteful. *See generally* Siegelman, *supra* note 116.

[126] For an interesting discussion of the "aura of suspicion" that surrounds welfare recipients (as opposed to other groups receiving various state subsidies, such as farmers), *see* Carey, *supra* note __ at 295-300.

[127] For example, a Welfare-to-Work program could be motivated by a mix of concerns about lifelong freeloaders and people who simply need extra help assimilating into the workforce.

[128] *See, e.g.*, Super, *supra* note __, at 857-58, discussing the current emphasis in welfare policy on "earning" one's share of public assistance:

> Some of the politically strongest public benefit programs--Social Security, Medicare, veterans' benefits, and unemployment compensation require claimants to have "earned" eligibility through their own work or the work of close relatives. Similarly, the food stamp program disqualifies many otherwise eligible college students but makes an exception for those who are working. And transitional medical assistance is provided for up to one year to families whose earnings have put them above the state's income eligibility limit for family Medicaid. This policy clearly is intended as a reward for work effort. In none of these cases is an exception made for people who were

Welfare implicates reciprocity principles of gift-and-exchange. Oded Stark and Ita Falk have argued that the reciprocity mechanism motivating the funding of relief for the poor is a utility function related in part to the gratitude of the recipients.[129] When recipients of welfare appear ungrateful, or seem to be taking advantage of the public generosity, a tit-for-tat reaction ensues among the contributors.[130] Persistent substance abuse, which created the recipient's disability in the first place, seems to embody non-reciprocation or appreciation for the benefits conferred. The response from the donors is to resent and retaliate, as a further function of the reciprocity.

Stark and Falk confine themselves mostly to classic economic semantics of self-interest; other researches have made more of a departure, finding reciprocity in the welfare area to be more intuitive and irrational. For example, in *Social Preferences, Self-Interest, and the Demand for Redistribution,*[131] Christina Fong focuses on the anomaly of voter-supported redistribution programs, compared with traditional economic theories of rational self-interested actors and altruism. Fong demonstrates, both through survey results and her own theoretical modeling, that self-interest and pure altruism are both inadequate models for explaining the observable attitudes of the populace toward wealth redistribution programs by the government. Self-interest does not

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> unable to work due to economic conditions or a lack of marketable skills: Work is treated (somewhat fictitiously) as dependent entirely upon a claimant's choice to work.

If one must earn eligibility for such popular benefits as Social Security, Medicare, veteran's benefits, and unemployment compensation, it may not seem to be asking too much of welfare beneficiaries to earn these benefits in part by repudiating cocaine explicitly through acceptance of the vaccine. In a simplistic form, they would be trading a small piece of autonomy, the ability to use and abuse cocaine and its derivatives such as crack, for the greater benefit of welfare. It is a simple decision relying on the pressures of economics; for many, the inconvenience of receiving the shot would seem like a small additional marginal cost to the already burdensome requirements and conditions for maintaining eligibility for cash benefits. Either you play by the government's rules or you do not get the governments benefits; this happens to law-abiding citizens everyday. The analysis employed here would also pertain to supervised release, discussed in the previous section, to the extent that supervised release appears to be a benefit like welfare.

[129] Oded Stark and Ita Falk, *On the Transfer Value of Gratitude,* in Herbert Giersch, ed., REFORMING THE WELFARE STATE 313-26 (1997).

[130] *Id.*

[131] Christina Fong, *Social Preferences, Self-Interest, and the Demand for Redistribution,* 82 J. PUB. ECONOMICS 225 (2001).

explain why some of the wealthiest voters—those least likely to benefit and most likely to incur loss from redistribution—often favor government "tax and spend" programs that help the poor. Fong argues that attitudes about the ability of individuals to control their financial circumstances through hard work dominate the utility they find in redistribution. Voters with stronger self-determination beliefs want to help those suffering from unfortunate circumstances beyond their control, but they often want to withhold help—or punish, as in a tit-for-tat—those who do not try hard enough to better themselves.[132]

Similar conclusions appear in *Reciprocity, Self-Interest, and the Welfare State,*[133] in which Samuel Bowles and Herbert Gintis argue that reciprocity instincts drive the public attitude toward poverty and welfare, as opposed to self-interest or pure altruism. Adherents of the classical *Homo Economicus* model explain the apparent mystery of redistributive programs either in terms of the median voters appropriating wealth from the rich in their general direction, attempting to move the mean income closer to the median income, or as a form of unemployment insurance for themselves.[134] Bowles and Gintis affectionately term these explanations the "selfish voter theory" and then set out to show how both approaches are insufficient to explain the empirical data regarding the income of the voters and their attitudes about redistribution of income.[135] Altruism also does not work well as an explanatory model for the current data and voter beliefs or some of the harsh measures of recent welfare reform.[136] Rather, the authors posit a model of voters with "a propensity to cooperate and share with others

[132] *Id*.

[133] Samuel Bowles & Herbert Gintis, *Reciprocity, Self-Interest, and the Welfare State,* 26 NORDIC J. POLITICAL ECONOMY 33 (2000).

[134] *Id*. at 35.

[135] *Id*.

[136] *Id*. at 37 ("We do not wish to replace the textbook *Homo [Economicus],* however, with a cardboard-cutout altruist, an equally one-dimensional actor unconditionally willing to make personally costly contributions to others.")

similarly disposed, even at personal cost, and a willingness to punish those who violate cooperative and other social norms, even when punishing is personally costly."[137]

Bowles and Gintis posit this model of behavior to explain the seemingly contradictory voter support for both equality and the mid-1990's revolt against the Welfare State.[138] The widespread perception, however accurate or inaccurate, was that many welfare recipients were simply working the system, too lazy to work and contribute to society, and engaging in irresponsible behavior.[139] This led to public backlash and curtailment of benefits, according to the authors. Their work relies heavily on Fong's; they offer more solutions for policymakers to consider, but many of these were already put in place under the very retaliatory welfare reforms they criticize as somewhat irrational.

As with the moral judgments that could influence the paternalistic decisions of policymakers with regards to parole and probation, reciprocity can tilt the thinking of policy makers (and their constituents at the polls), creating a very complicated scenario for libertarian paternalism. Again, it is not clear if Sunstein and Thaler's model would caution in favor of more restraint by policy makers in situations where reciprocity typically bears on their decisions, or if it should be ignored as a fact of life, or somehow irrelevant to the model. It does not seem

[137] *Id.* at 37. There is at least one study arguing that reciprocity is actually not present in attitudes about welfare: Eline C.M. Van der Heijden, Jan H.M. Nelissen, Jan J.M. Potters, and Harrie A.A. Verbon, *The Poverty Game and the Pension Game: The Role of Reciprocity*, 19 J. ECONOMIC PSYCH. 5 (1998), in which a group of Dutch economists and social scientists conducted experiments to assess the innate inclinations of people to redistribute wealth in an egalitarian manner. Subjects played two games, a "poverty game" and a "pension game." In the first, the players were given grossly unequal amounts of money and given the option to transfer increments to their co-players in repetitive rounds. The pension game involved, not surprisingly, contributions from endowed members to the poor with the expectation of deferred returns later on. The researchers' main result was that they found "almost no evidence for reciprocity."

[138] The primary example of such sweeping reforms was the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), which culminated in the 1996 reforms, abolishing the AFDC system and replacing it with a program based on "welfare-to-work" and time limits for receiving public assistance.

[139] The main example of perceived irresponsible behavior is out-of-wedlock births, which appear to be epidemic among the unemployed poor.

irrelevant, however, because where these attitudes are present, those in charge are more likely to restrict the autonomy of the subject group.

Reciprocity as a form of "bounded rationality" complicates welfare policy in another way: the recipients themselves make decisions clearly against their self-interest under circumstances where the policy makers appear too heavy-handed or unreasonable. For example, Gary Tschoepe and John Hindera describe how reductions in one welfare program produced the result that recipients stopped using other programs for which they would still qualify.[140] The data could be affected by a number of independent variables, of course. There is also historical evidence that SSI/SSDI recipients who were cut from the program and told to reapply under new eligibility guidelines in 1997 often did not do so—even in cases where they would have qualified under the new rules.[141] It appears that individuals do not seek out and apply for the benefits that they could receive once a previous program has been curtailed. Attempts to force desired reciprocity from welfare recipients through contracts to repay the assistance if they are ever able, or contract-like promises to seek employment as soon as possible, can have a "crowding out" effect in the recipients, making them less compliant than before.[142]

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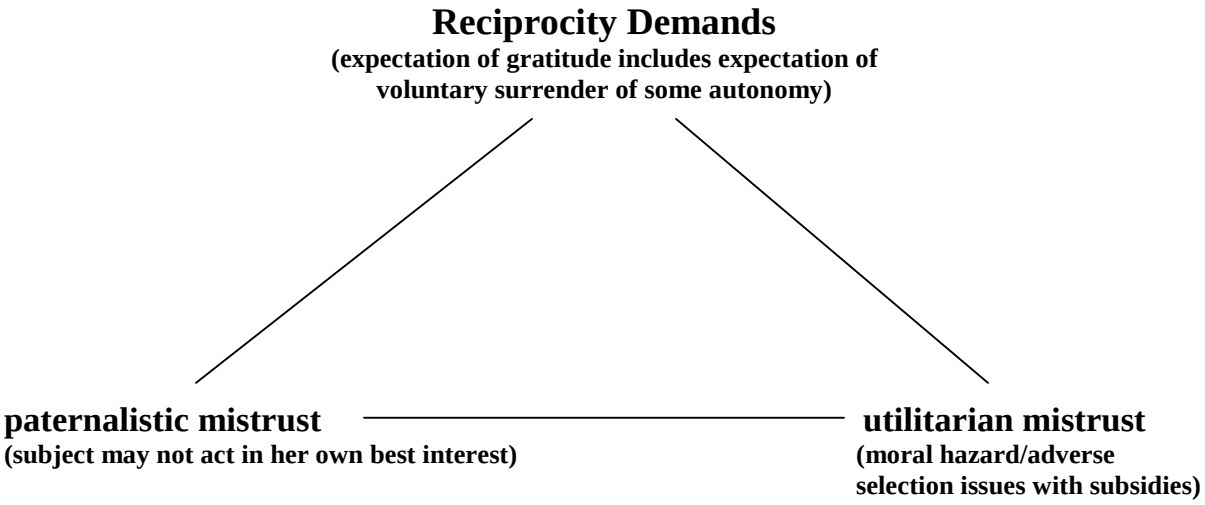
[140] Gary J. Tschoepe and John J. Hindera, *Explaining State AFDC and Food Stamp Caseloads: Has Welfare Reform Discouraged Food Stamp Participation?* 38 SOCIAL SCIENCE JOURNAL 435 (2001).

[141] *See* Interim Report, *Policy Evaluation of the Effect of Legislation Prohibiting the Payment of Disability Benefits to Individuals Whose Disability is Based on Drug Addiction and Alcoholism,* Social Security Adminstration (Prepared by the Lewin Group, Inc.), April 28, 1998. This was a comprehensive study conducted on behalf of the Social Security Administration itself in 1997 and 1998. About half the number of the targeted beneficiaries that Social Security predicted would retain or re-establish their benefits on other bases did so, 34% instead of the projected 70%. In real numbers, this means 138,000 permanently lost their benefits, while 71,000 were able to retain them or requalify. About 28% never reapplied, either because they knew they would not qualify again under the new rules, or because of mental inability or misunderstanding. Many of the claimants did not have stable addresses and could not be contacted by field offices to clarify the changes that were occurring. A common report was that "those most in need of the benefit are also those least able to complete the reapplication (or initial application) process," because of low functional ability and "limited capacity to comply with the requirements of the relatively complex and time consuming reapplication process."

[142] *See* Ernest Fehr & Simon Gachter, *Do Incentive Contracts Crowd Out Voluntary Cooperation* (2001) (manuscript on file with author).

This presents more of the type of situation Sunstein and Thaler discuss, because the bounded rationality is taking place among the subject group, not those in charge. Applying their model to this case could warrant careful framing of new conditions and eligibility requirements so that the intended recipients of the program do not self-select away from enrolling. Figure 2 helps illustrate the type of framing that may face policymakers in this context. Reciprocity is on top, although it does not have to be; the point is that policymakers in this context (and many related contexts) have at least these three values pulling at them, and perhaps more, such as budgetary concerns or political controversy about the legitimacy of existing welfare programs. There is a reasonable change, however, that policymakers would not be self-aware enough to see these underlying values influencing the decisions made on behalf of the welfare recipients.

Fig. 2.



The diagram helps illustrate a specific form of bounded rationality that could influence decision-makers in balancing paternalism and personal autonomy in the welfare setting. Reasonable paternalistic concerns are often present with those who have been unable to become

self-sufficient adults; behavioral economics would generate concerns about abuses of the system through moral hazard or adverse selection. Reciprocity instincts could bolster both in rationalizing infringements on the choices of the program applicants. A comprehensive model for libertarian paternalism should account for these features.[143]

Many see welfare as inherently paternalistic; it would be helpful to have a model like libertarian paternalism to assist policymakers in assessing which conditions of welfare are truly legitimate.[144] Drug policy is also paternalistic, and the connection of drug policy to welfare policy is nothing new. Vaccines, however, also present thorny issues of paternalism and

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[143] *See* Super, *supra* note __, at 858-59, noting that one common condition already in place for welfare recipients is immunization of their children:

> Most prominently, the Temporary Assistance for Needy Families statute gives states incentives to require most low-income families to earn means-tested cash assistance payments through compliance with work and other behavioral requirements. Many states also extend their time limits for claimants who are working or complying with work requirements. This vision of choice has significant flaws. Not only does it ignore the plight of people who choose to work but are unable to find employment, but it also takes an unduly narrow view of what constitutes "work" for low-income parents (or, to put it another way, inappropriately assumes that work outside of the home is the only valid choice for them). Were the work of parenting considered a way to "earn" benefits, the condition of low-income families in this country would be considerably better. Some states' categorical rules for their TANF-funded programs now make parents' compliance with certain minimum standards of performance (e.g., having their children immunized) a necessary condition of eligibility, but except in the case of very young children, none makes parenting sufficient to satisfy categorical requirements. It should perhaps go without saying that the subjective judgments inherent in programs' definitions of what it means to "earn" a benefit implicate deeper problems with society's failure to value work traditionally done disproportionately by women. This suggests a limitation of the principle of choice. Low- income people are deemed independent and capable of making their own decisions for purposes of declining public benefits or committing acts deemed worthy of penalties. Yet in their more important capacity as parents, they are deemed incapable of making responsible decisions.

Some states already require parents to immunize their children before they can earn welfare benefits. If the state can force a parent to immunize their child, who has no say in the decision, it seems a small step for the state to force the parent to take the cocaine vaccine. This would seem especially true if the recipient had a history of abusing cocaine or its derivatives.

[144] Sunstein and Thaler distinguish their libertarian paternalism model from more stringent forms of paternalism, arguing that libertarian paternalism does not favor the elimination of choice; rather, libertarian paternalism supports orienting default rules and framing and anchor affects in such a way as to provide an increase in the welfare of the targeted class. As illustrated in Figure 2, there are certain heuristics that affect the policy planners' decisionmaking that are not accounted for the in libertarian paternalism model. This in turn begs the following question: have Sunstein and Thaler really developed a new model that balances libertarian values with certain paternalistic duties of leaders, or have they simply affixed the adjective "libertarian" to the same paternalistic policies seen before in the hope of justifying more intervention into personal decisionmaking? I maintain that their model makes valuable progress in the discussion of how to balance conflicting values of freedom and enlightened benevolence, but it is doubtful that true skeptics (those not already inclined toward a centrist position) will accept the result.

limitations on personal autonomy; but the issues surrounding vaccines are more universal and not related in any special way to welfare benefits. Universal application is the subject of the next section.

V. UNIVERSAL VACCINATION

Vaccinations are at once a well-settled area of law and an ongoing source of legal controversy.[145] The Supreme Court has held unwaveringly that the government—including the smallest subdivisions or compartments of local authority, such as school boards—can require universal vaccination of everyone under its jurisdiction, and can impose sanctions for noncompliance.[146] Such public policy has resulted in vaccination rates over 95% among schoolchildren and the virtual eradication of once-feared (and often epidemic) diseases like

[145] For an excellent recent discussion of the legal history of mandatory vaccination, as well as the ongoing controversies surrounding the practice, *see* Steve P. Calandrillo, *Vanishing Vaccinations, Why Are So Many Americans Opting Out of Vaccinating Their Children?* 37 U. MICH. J. L. REFORM 353 (2004). Caladnrillo takes a pro-vaccination stance and offers extensive documentation of the saved lives and enormous economic savings of virtually eradicating once-dreaded diseases in the United States. He expresses concern over the widespread misinformation circulating through the Internet about the supposed risks of vaccines and the growing convenience of refusing vaccines – parents in many areas simply check off a box on a mail-in card to have their children opt-out of normal childhood vaccinations. *See id.* at 411-19. This opt-in/opt-out convenience for childhood vaccination exemptions in itself provides an interesting test case for the Sunstein-Thaler model, especially given its emphasis on the importance of default rules and framing of choices. *See also* James G. Hodge, Jr. & Lawrence O. Gostin, *School Vaccination Requirements: History, Social, and Legal Perspectives*, 90 KY. L. J. 831, 833 (2002) (excellent survey of history of childhood vaccinations in America and extensive documentation of state-by-state rules for exemptions, both statutory and judicial).

The legal history of vaccinations has had three watershed events or periods. These were the advent of universal/mandatory vaccinations in every state in the nineteenth and early twentieth centuries, a tidal wave of bankrupting tort litigation against vaccine producers over occasional injuries or product defects, which drove all but two vaccine manufacturers from the market, and National Childhood Vaccine Injury Act of 1986. *See* Michael Sanzo, *Vaccines and the Law*, 19 PEPP. L. REV. 29 (1991) for a thorough discussion.

For a discussion of the current legal problems and health risks posed by childhood vaccinations, *see* Michael E. Horwin, Comment, *Ensuring Safe, Effective, and Necessary Vaccines for Children*, 37 CAL. W. L. REV. 321 (2001). Horwin is generally anti-vaccination, and argues that the public policy decisions about new vaccine approvals and requirements have occurred in the context of conflicts of interest, with pharmaceutical industry insiders controlling the policy and profiteering as a result, even where serisou public health risks remain. The virulent anti-vaccination movement and relentless wave of litigation may be partly to blame for the current shortages of many vaccines. *See, e.g.*, Lars Noah, *Triage In The Nation's Medicine Cabinet: The Puzzling Scarcity Of Vaccines And Other Drugs*, 54 S.C. L. REV. 741 (2003) (arguing that the shortages are creating an urgent public health crisis and that increased immunity form tort liability would help mitigate the problem).

[146] Jacobson v. Massachusetts 197 U.S. 11 (1905); Zucht v. King 260 U.S. 174 (1922).

smallpox, polio, diphtheria, etc.[147] The World Health Organization heralds universal vaccination as one of the two greatest feats of modern public health policy (the other being availability of clean water for the general population).[148]

This rather entrenched legal situation does not mean the matter is settled social policy.[149] There is growing litigation over the availability of religious and philosophical exemptions[150] to the vaccine requirements. There is also a growing movement in society of individuals and groups opposed to some or all of the vaccinations currently in use.[151] As with every movement, the Internet has provided unprecedented means for this movement to disseminate propaganda, organize and counsel adherents, and track or report (sensationally) each case of a vaccine having deleterious effects on the recipient—usually a child.[152] Cases that were once isolated incidents can now have celebrity status.[153]

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[147] *See* Hodge & Gostin, *supra* note __, at 886.

[148] *See, e.g.*, Calandrillo, *supra* note __ at 365-66; *see also* Hodge & Gostin, *supra* note __, at 878 (similar statement by the Center for disease Control).

[149] See Boyce, *supra* note ___ and accompanying text.

[150] *See* Boone v. Boozman, 217 F. Supp. 2d 938 (E.D. Ark. 2002) (granting mother's motion for summary judgment under the First Amendment, holding that a state statue requiring a Hepatitis B immunization for enrollment in a public school was a violation of the Establishment Clause and Fee Exercise Clause of the First Amendment); *But cf.* Wright v. De Witt School Dist., 238 S.W.2d 906 (Ark. 1965) (holding that a church member's freedom to act according to their religious beliefs was subject to a reasonable regulation for the benefit of society as a whole). *See also* Calandrillo, *supra* note __ 411-27.

[151] *See, e.g.*, Calandrillo, supra note __, at 388-408; Hodge & Gostin, *supra* note __, at 884-89. Horwin, *supra* note __, is representative of this perspective, although much more sophisticated than most advocates on this side of the debate.

[152] *See, e.g.*, Calandrillo, supra note __, at 395-404; Hodge & Gostin, *supra* note __, at 886. One such study released in the 1970's reported a possible link between the whooping-cough vaccine and brain damage. *Rash Worries*, ECONOMIST, April 11, 1998, at 63. In the aftermath, several whooping-cough epidemics arose in several countries causing hundreds of deaths world-wide. *Id*.

[153] *See, e.g.*, Horwin, supra note __, at 321-23, opening his law review comment with such a tragic anecdote. Another example of the sensationalism attached to alleged linkages between vaccinations and future health problems can be seen in the public's reaction to a 1998 study authored by Andrew Wakefield from the Royal Free Hospital and School of Medicine in London, England. In this report, Wakefield purports to have established a link between the venerable MMR vaccination (a triple-target vaccination for immunizing infants against measles, mumps, and German Measles – commonly called rubella) and autism. *Rash Worries*, Economist, April 11, 1998, at 63. Even after the study was called into question by both the World Health Organization and the Centers for Disease Control, a British panel found that demand for the vaccination had fallen by 1% within a few months of the study's release. With no sign this trend was slowing, the same panel estimated a full 2% drop in immunization rates in the near future. *Id*. Although a 2% decrease in immunizations does not seem worrisome at first glance, a drop in

The interesting thing about the anti-vaccine movement is that its arguments have not really changed since vaccines appeared almost 200 years ago.[154] Every vaccine results in a small number of cases (usually statistically insignificant) of bad side effects, including sickness, infection with the very disease it is supposed to prevent, or death.[155] Mandatory invasive medical procedures—i.e., shots—infringe somewhat on personal autonomy and smack of paternalism or even coercion.[156] Some refuse to credit universal immunization with the disappearance of deadly diseases, attributing this phenomenon instead to a simple natural downturn in the historical cycle of the epidemics.[157] From the beginning, much has been made of the fact that those championing the use of the vaccines also had a financial interest in the vaccine's mass production; this criticism arises today against the pharmaceutical conglomerates who hold the rights to the vaccines.[158]

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demand of that magnitude could potentially reduce the community level of vaccinate below the point where the population in general is sufficiently immunized against these three diseases. *Id*.

Interestingly, on February 20, 2004, ten of the original thirteen doctors included in the MMR and autism link study along with Wakefield submitted a retraction to the Lancet (the original journal publishing the study) concerning their alarming 1998 report. BBC News, *Journal Regrets Running MMR Study*,(Feb. 20, 2004), *available at* http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/3508167.stm. In addition, the doctors released a public retraction on Wednesday, March 4, 2004 citing insufficient evidence to form a causal link between the MMR vaccine and autism. BBC News, *MMR Researchers Issue Retraction* (Mar. 4, 2004), *available at* http://news.bbc.co.uk/2/hi/health/3530551.stm. Citing lack of a causal connection and various conflicts of interest, the doctors expressed regret over the negative impact to the public health caused by the study. Anahad O'Connor, *Researchers Retract a Study Linking Autism to Vaccination* (Mar. 4, 2004), *available at* http://www.nytimes.com/2004/03/04/science/04AUTI.html?ex=1079369909&ei=1&en=.

[154] *See, e.g.*, Hodge & Gostin, *supra* note __, at 844-49, 884-89.

[155] *See* Calandrillo, *supra* note __, at 389-93.

[156] *See, e.g.*, Jacobson v. Massachusetts 197 U.S. 11 (1905). In this seminal case concerning immunization required by the state, Jacobson challenges a Massachusetts statute requiring smallpox vaccinations. In support for his position, Jacobson argues:

> [A man's] liberty is invaded when the state subjects him to fine or imprisonment for neglecting or refusing to submit to vaccination; that a compulsory vaccination law is unreasonable, arbitrary, and oppressive, and therefore, hostile to the inherent right of every freeman to care for his own body and health in such a way as to him seems best; and that the execution of such a law against one who objects to vaccination, not matter for what reason, is nothing short of an assault upon his person.

Id. at 26.

[157] *See* Hodge & Gostin, *supra* note __, at 886-87; Calandrillo, *supra* note _-, at 395.

[158] *See, e.g.*, Horwin, *supra* note __, at 338-45. Horwin offers the following terse summary of recent Congressional committee findings in his introduction:

There is an irony inherent in vaccines. The more they work, the less necessary they seem, especially on the individual level.[159] This is why smallpox vaccinations ended several years ago; it seemed pointless to devote resources and incur risks to inoculate against a disease the scientific authorities have already pronounced "eradicated." The more effective a mandatory vaccine policy is over time, the more public resentment increases. Dropping the policy, of course, risks an eventual return of the disease on an epidemic level; this may be especially true in a country that draws visitors and immigrants from every part of the globe, including undeveloped countries where pestilence still ravages the population. This political irony is a type of "collective bounded rationality." Sometimes the whole population, or at least parts of it, cannot see through the immediate circumstance to take proper precautions against future risks.

The same irony about vaccines is manifest on the individual level; here the objections seem more rational. Once the "herd," so to speak, has immunity to a contagious disease (those spread member-to-member), there is little risk posed by an occasional individual member being

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> The House of Representatives Government Reform Committee conducted an investigation into the background of the doctors who participated in the pivotal FDA and CDC vaccine advisory committees that allowed this vaccine to be approved. The investigation culminated in a committee report released on August 21, 2000. According to the report, "The Committee's investigation has determined that conflict of interest rules employed by the FDA and CDC have been weak, enforcement has been lax, and committee members with substantial ties to the pharmaceutical companies have been given waivers to participate in committee meetings."

Id. at 324, citing Majority Staff of the Comm. on Government Reform, U.S. House of Rep., 106th Cong., Conflicts of Interest in Vaccine Policy Making 9-16 (Aug. 21, 2000). One argument against this claim is the chronic unprofitability of vaccines for their producers. *See, e.g.*, Noah, *supra* note __, at 747-59.

[159] *See, e.g.*, *Going with the Herd*, ECONOMIST, April 11, 1998, at 13. In an article dealing with mass vaccinations, the 'herd immunity' and the moral hazard problem of the 'free-rider' are analyzed. The author states that, in fact, the benefits of mass immunization are twofold: "Besides directly protecting individuals from infection, a campaign of mass vaccination provides so-called 'herd immunity.' This is the level of immunity in the population above which an epidemic cannot start a kind of firebreak for disease." A potential pitfall lies within this same level of community immunization: the moral hazard problem of the free-rider. Once the critical level is reached (the level of public immunization that would prevent an epidemic of disease outbreak), the possibility that one could choose to not be immunized and "reap the rewards" so to speak of other's immunization becomes a problem that must not be overlooked. The problem lies, of course, with the aggregation of free-riders within the community diminishing the efficacy of the immunization received by those participating in the mass vaccination program. *Id*.

The significant increase in preventable-disease infections and deaths in Russia provides support for the ramifications of the free-rider problem in the aggregate. "With the end of compulsory vaccination and the collapse of the health system, hundreds have died from diseases that were on the point of extinction there a decade ago." *Id*.

naturally susceptible (unvaccinated).[160] The herd is immune, and members will not catch the disease even if the unvaccinated individual becomes infected. At the same time, the unvaccinated member should have no way to become infected if the rest of the "herd" is immune. This is why religious exemptions—available in all but three states[161]—have not led to new outbreaks of the diseases in the schools.[162] Nearly all the other students are immune, so

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[160] *See, e.g.*, Calandrillo, *supra* note __, at 420-21:

> This idea is based on the concept of "herd immunity." Most vaccine-preventable diseases are transmitted from person to person. When a large percentage of a given population is immunized against a disease, that "herd community" serves as a protective barrier against the spread of infection to others in the group who are not immunized or whose immune systems are suppressed due to age or infirmity. Because herd immunity occurs at a level below a 100% immunization rate, it is not necessary for every single person in a community to be vaccinated. However, herd immunity can exist only if a sufficiently high proportion of the population is immunized such that the transmission of the disease is effectively interrupted. Therefore, society cannot allow every one of its members (or even a sizeable minority) to rely on the indirect protection afforded by other vaccinated members of the herd--because then community protection unravels as all try to "free ride" off of the benevolent acts of others. With this reasoning as a backdrop, compulsory vaccination laws were enacted to ensure that all in the population received immunizations, thereby serving the wider public good by creating a herd community capable of protecting the weak within its borders. This protection is crucial because inevitably there will be individuals in society who cannot be immunized due to HIV, cancer, pregnancy or other serious medical conditions. Additionally, it takes several years for infants and young children to complete the ACIP recommended childhood immunization schedule. During this time, they count on the herd community to protect them from contracting serious illness. If an older sibling brings home a virus in the meantime because friends at school were not immunized, his little sister's life may be threatened.

[161] The three states without religious exemptions are Arkansas, Mississippi, and West Virginia. Ross D. Silverman, *No More Kidding Around: Restructuring Non-Medical Childhood Immunization Exemptions to Ensure Public Health Protection*, 12 ANNALS HEALTH L. 277, 283 (2003). Those states with a religious exemption statute generally require the submission of a form or affidavit claiming the opposition to the vaccinate, while other states require a more rigorous scrutiny of the objector's religious practices and affiliations. *Id*. In both Kentucky and Arkansas, specific language has been removed requiring the religious objector to be a member of a recognized religious organization. *Id*. at 283-92.

West Virginia's legislature has considered repeated bills proposing religious exemptions, but has not passed any to date; the most recent attempt was in March 2004. The most recent bill passed the West Virginia senate by a 30-2 vote, but was tabled by a committee in the House of Delegates. *See, e.g.*, Bethany Holstein, *Vaccine Bill Fails to Pass*, THE INTELLIGENCER/WHEELING NEWS-REGISTER, March 13, 2004, at http://news-register.net/news/story/0313202004_new03.asp. Interestingly, lobbyists for religious exemptions there were happy the bill failed, because they expected courts to find it unconstitutional; the bill would have allowed exemptions for those with a certificate signed by a "clergy member" authorized to perform marriages under West Virginia law. Pro-life groups originally proposed the exemption because they object to the vaccines for chicken pox and rubella, which were initially developed through stem cells, purportedly from aborted human infants. *See id.*

[162] There have been outbreaks, however, in communities where a large enough population is unvaccinated. *See* Calandrillo, *supra* note __, at 422:

> it is vital to look at opt-out rates in local communities because statewide or national numbers can hide areas where exemptions are dramatically higher than overall averages indicate, making it possible for disease pockets to spring up. For instance, even though 84% of schools in California boast exemption rates of less than 1%, 1 in 25 schools indicated that over 5% of their students had

they cannot catch the disease from the religious objectors; the religious objector is susceptible but very unlikely to encounter the infectious pathogen.[163]

Religious objections aside,[164] the individual child may be at greater risk of harm from the vaccine itself than from the remote possibility of infection among otherwise immunized children. This is a matter of simple self-interest versus the collective good, of course; collective action at the individual's expense is not necessarily paternalism, although it bothers some libertarians nonetheless.[165] Yet the collective good issue is not exactly what it seems, either, for the failure

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not received their required immunizations. Other hot spots have cropped up in Boulder, Colorado and in towns in Missouri and Massachusetts. Moreover, the National Immunization Survey reported that in King County, Washington (a major population center home to Seattle), 24% of two-year olds are not fully immunized with the three most basic vaccines available (DTaP, polio, and MMR). The clustering of exemptions in these hot spots can lead directly to disease. Religious exemptions to vaccination in Amish, Mennonite and Christian Science communities are responsible for the last two major outbreaks of polio in America. During the resurgence of mumps that began in 1986, large outbreaks were for the most part confined to states that did not have comprehensive (i.e., kindergarten through grade 12) vaccination laws.

[163] An interesting situation involving purported religious objections to the vaccine for polio has recently been encountered in Nigeria. Glenn McKenzie, *Official Defends Polio Vaccine Boycott* (Feb. 26, 2004), *at* http://story.news.yahoo.com/news?tmpl=story&u=/ap/20040226/ap_on_he_me/west_africa_polio_2. Starting February 23, 2004, the World Health Organization (WHO) undertook a massive door-to-door push to vaccinate Nigerians against the crippling, often fatal, human polio virus. *Id*. This attempt at mass vaccination, however, has come under scrutiny from Kano, Niger and Zamfara – three predominately Muslim states in the country's northern region – after research sponsored by state scientists detected "trace levels of estadiol, a type of the female hormone estrogen found in oral contraceptives, in a batch of the vaccine." Glenn McKenzie, *Emergency Polio Campaign Ends, Marred by Lingering Nigerian Muslim Boycott* (Feb. 27, 2004), *available at* http://www.sfgate.com/cgi-bin/article.cgi?file=/news/archive/2004/02/27/international1428EST0638.DTL.

Although United Nations and Nigerian officials repeatedly attempted to assure the Muslim citizenry the vaccines were safe, "stressing that any hormones found at the levels alleged would be harmless," Islamic leaders declared the vaccination attempt a plot to render African females infertile. *Id*. While the WHO's eight-year-long polio vaccination drive has had success – reducing occurrences of polio from an estimated 200 cases per day to just over 750 in all of last year – the northern region of Nigeria is still considered to be an epicenter for the world-wide spread of the disease. Nigerian President Olusegun Obasanjo has committed to discussing the issue with the states' governors before the next round of vaccinations should begin in late March of this year. Reuters, *WHO Upbeat on Eradicating Polio* (Feb. 27, 2004), *at* http://reuters.co.uk/newsArticle.jhtml?type=healthNews&storyID=4458026&section=news.

[164] It is important to note that religious exemptions are not the only means by which parents can object to compulsory vaccinations. Individual medical and philosophical exemptions are also available in many states. Hodge & Gostin, *supra* note _, at 883. Hodge and Gostin provide an excellent, in-depth assay of the historical development and social implications of compulsory vaccination programs in the United States. In addition to publishing findings that vaccination requirements have indeed had a positive effect on the spread of communicable disease, the authors discuss modern antivaccination arguments, which often relate to a mistrust of paternalistic legislation requiring a default decision of mandatory vaccination. *Id*. at 836.

[165] *See* Calandrillo, *supra* note __, at 361:

Unfortunately, this triggers a classic collective action problem: increasing numbers of free-riders undermine society's ability to achieve a critical mass of people who are vaccinated. The declining

of one child to be immunized does not present a very great risk to other children who are. This is more a problem of hyperrationality (game theory) than bounded rationality. The result of autonomy in a hyperrational environment, though, can be disastrous for all the players—as with the Prisoner's Dilemma—in some cases requiring government intervention. The individual hyperrationality creates a collective bounded rationality. The Sunstein-Thaler model must account for this phenomenon—hyperrational settings where everyone ends up worse off, even though bounded rationality is not present.

Necessity is the mother of invention; sometimes the inventions devised to solve an immediate crisis take on a more strategic benefit later on.[166] Universal vaccination swept the nation during the century between the 1820's and 1920's; it mostly took the form of an eligibility requirement for attending the public schools, which themselves were relatively new and newly compulsory.[167] Forcing all the children in a community to congregate in confined quarters for most of the day (many early schools were one-room schoolhouses) presented an epidemiological hazard unprecedented in history, except perhaps for seafaring voyagers in the past. Childhood infections could spread like never before; it is easy to see why most local government or school

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> community immunity no longer protects members in the group who have not yet been immunized or whose immune systems are more vulnerable due to age or infirmity. Sadly, as exemptions proliferate, disease "hot spots" are cropping up across the United States where large pockets of children have not received many or any of their mandatory immunizations. The consequences are not merely academic--outbreaks of measles, whooping cough, mumps, rubella and diphtheria are reoccurring, costing hundreds of lives and hospitalizing thousands more. Negative externalities are imposed upon well-intending parents, as their young infants may be exposed to life-threatening illnesses before they even have the ability to complete the recommended childhood immunization schedule. Others, often in the elderly segment of the population or those afflicted with HIV or cancer, have weakened immune systems that leave them susceptible despite previous vaccinations. Finally, the rise in exemptions imposes substantial financial burdens on the healthcare system in dealing with the outbreaks that do occur.

[166] *See generally* Boyce, *supra* note ___. "Eventually, say ethicists, institutions struggling with drug abuse, from prisons to schools, might embrace [addiction-oriented vaccinations] and healthcare workers might urge them on pregnant women. Parents also might want to get their children vaccinated as a preventative measure."

[167] *See* Hodge & Gostin, *supra* note __, at 850-54.

boards quickly adopted requirements that students be vaccinated in order to enroll. Of course, enrollment was compulsory, so vaccination was *de facto* compulsory as well, albeit indirectly.

This indirect compulsion became the mode of universal vaccination.[168] It was less and less necessary to compel adult vaccination; within a few years, everyone had already received inoculations in childhood. Despite the persistence of a virile anti-vaccination movement throughout the country, it did not escalate into the type of public uproar that usually attends similar infringements on personal autonomy (especially ones that contradict individual rational self-interest). [169] The vaccinations were not directly compulsory or forced. They were merely a condition for something else that most viewed as a public benefit (school), even if the benefit was something mandatory. In effect, there was no difference: the vaccine was functionally mandatory, but psychologically it did appear so, at least in an immediate sense. In addition, the inoculations took place at an age when the subjects have no say about medical procedures. This is paternalism in its original sense, of course, except that here it serves the public health interests of the state. The age of vaccination has moved increasingly downward, to infancy, meaning that the subjects cannot even articulate an objection if they had one (which would be legally

[168] There were some early examples of adult communities being ordered to receive inoculations, with criminal sanctions for noncompliance but these faded from the scene quickly as schoolchildren became the focus of the public health measures in this area. *See, e.g.*, Jacobson v. Massachusetts 197 U.S. 11 (1905) (holding that it is within the power of a state to impose regulations mandating vaccinations, and such mandate does not violate the individual's rights as set forth in the Fourteenth Amendment to the United States Constitution)

[169] *See* Hodge & Gostin, *supra* note __, at 851-52:

> Antivaccinationists strongly opposed the initial passage of school vaccination requirements for many of the same arguments discussed above, and attempted to repeal or thwart such laws through political routes, judicial challenges, and outright refusals to comply. In 1894, antivaccinationists in Rhode Island came within one vote of repealing an existing state school vaccination law. The Anti-Vaccination League and others in Pennsylvania narrowly failed to repeal the two-year-old state school vaccination law in Pennsylvania. Antivaccinationists and others, including politicians, physicians, and ministers in Milwaukee, Wisconsin, fought the city health officer as he attempted to quarantine and isolate smallpox victims in 1894. These efforts later contributed to a revamping of the powers of the city health board. In Louisiana, a city physician showed high school girls a picture of a boy who contracted erysipelas, a painful skin disease, as a result of smallpox vaccination. The girls naturally refused to be vaccinated despite a mandatory policy of the state board of health. Parents in Haledon, New Jersey convinced the local school board to overturn a rule requiring children to be vaccinated in 1924.

irrelevant in most cases anyway).[170] The subject class cannot vote or organize politically, so the system was not vulnerable to widespread revolt.

Historically, then, the advent of compulsory public schools created the immediate occasion for universal immunization.[171] The strategic result is an enduring policy whereby the government infringes on the personal autonomy, and eventually the rational self-interest—of millions of citizens without serious political repercussions. The end result does seem to be wonderful—the eradication of dreaded diseases—but it is simply cloaked paternalism in its highest form.[172]

The religious and philosophical exemptions have also played an important role in the political staying power of the policy. The exemptions function as a type of release valve for

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[170] The number and frequency of vaccines given to infants has also increased, which has recently become an additional source of controversy. *See, e.g.*, Horwin, *supra* note __, at 325-26:

> My parents were born in the 1930s. Members of their generation received three vaccines. I was born in the early 1960s and received vaccines for polio, smallpox and DPT. A child born today will receive five doses of DPT, four doses of polio vaccine, two doses of measles, mumps and rubella, three injections of hepatitis B, one shot of varicella (chicken pox), four doses of haemophilus influenzae b (Hib), four injections of a pneumococcal conjugate vaccine, and, depending on where the child lives, perhaps one shot of hepatitis A. In addition to getting more shots, children today get vaccines at a younger age. As displayed infra, twenty of the twenty-four injections (thirty of the thirty-eight different constituent vaccines) should be administered to a child before he or she is eighteen months old. In addition, some children may also be injected with up to nine different vaccines in a single day.

Calandrillo notes that this is a frequent feature of modern anti-vaccination literature, and offers this retort: "Vaccines do not overwhelm an infant's immune system; babies actually possess billions of immunologic cells . . . capable of responding to millions of different viruses and bacteria. In fact, vaccines are no more than a "raindrop in the ocean" of what an infant's immune system encounters every day." Caladnrillo, *supra* note __, at 398.

[171] Hodge & Gostin, *supra* note __, at 850-54.

[172] *See, e.g.*, Prince v. Massachusetts, 321 U.S. 158, 166-67 (1944). When deciding a case concerning child labor laws, the Court holds that the state has the power to take certain steps to protect the child by acting as a proxy for the parent:

> But the family itself is not beyond regulation in the public interest, as against a claim of religious liberty. And neither rights of religion nor rights of parenthood are beyond limitation. Acting to guard the general interest in youth's well being, the state as *parens patriae* may restrict the parent's control by requiring school attendance, regulating or prohibiting the child's labor and in many other ways. Its authority is not nullified merely because the parent grounds his claim to control the child's course of conduct on religion or conscience. Thus, he cannot claim freedom from compulsory vaccination for the child more than for himself on religious grounds. The right to practice religion freely does not include liberty to expose the community or the child to communicable disease or the latter to ill health or death.

Id. at 166-67.

pressure building up within the system; the most strident objectors get to sit out the game, for the most part, at little cost to themselves or the rest of the group. A bigger problem is the growth in recent years of the home school movement, and its unfortunate tendency to overlap with the anti-vaccination movement: home school children do not even need the exemptions because they are not enrolled in public school.[173] At the same time, home school families sometimes form local associations or co-ops to encourage each other in their boycott of the school systems and to give their children a chance to socialize with other kids their age.[174] When these children are together, though, the group as a whole may be unvaccinated, making the risk of an old-fashioned outbreak more substantial. From the Sunstein-Thaler perspective, the general policy arrangement could be characterized as a default rule of vaccination with an opt-out alternative, which means that most people will end up getting vaccinated; this is the desirable outcome. When home schooling comes into the equation, however, the default rule flips, which will lead to a decrease in vaccinations.

Adult vaccinations are typically offered as an opt-in program, with the default being no immunization. The seasonal flu vaccines are an example; these are underutilized.[175] The strategic game in these cases, however, differs from the scenario with children's vaccines. Most

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[173] For an analysis of the interrelationship between mandatory vaccinations, public schools, exemptions on the ground of individual rights and past success of immunization programs, *see* Silverman, *supra* note __, at 277-78. The childhood immunization program "relies upon three separate components: legislatures to pass laws . . . state health departments and boards to help refine the mandates and exemptions processes, and school districts and individual schools to carry out such mandates." *Id*.

Silverman argues that the increasing number of exemptions allowed from the compulsory immunization programs (religious or otherwise), when considered in the aggregate, pose a serious threat to the past success of these vaccination programs. Silverman calls for "proactive and collaborative solutions [to the problem of mass exemptions]… rather than the complete elimination of the ability of those seeking exemption to receive relief under the law…." *Id*. at 293.

[174] *See* Hodge & Gostin, *supra* note __, at 856-57, discussing the home school movement and its interrelation to vaccination of children.

[175] *See generally* Dale W. Bratzler, B. F. Christiaens, Katherine Hempstead, & Kristin L. Nichol, *Immunization For Seniors*¸ 30 J. L. MED. & ETHICS 128 (2002) (discussing the problems of underutilization of flu and pneumococcal pneumonia vaccines among seniors). The most common adult deaths from vaccine-preventable diseases are due to influenza and pneumococcal disease. *See id*. at 128.

of the population has not received inoculations against the flu, so the likelihood of exposure is much higher; it would be in any individual's self-interest to be one of the few who are immunized, in contrast to the situation with schoolchildren.

Seniors are particularly susceptible to influenza and the more serious sequelae; yet most do not get the vaccines.[176] This may be due in part to suspicion about newer medical therapies, or an aversion to needles, or simply forgetting or not knowing about the vaccine. This might be an instance where libertarian paternalism would be particularly useful. The subject class would be better off—to the best of our scientific knowledge, although there is some controversy—if they were inoculated, even apart from the collective epidemiological issues.[177] The political fallout from forced adult vaccinations can be great, especially if the media sensationalizes cases of bad side effects,[178] so it may be an occasion when libertarian paternalism would falter.

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[176] *See id.* at 130 ("In 2001, only 64.3% of the elderly had received an influenza vaccination, and only 53% had ever received a pneumococcal vaccination. These rates are far short of the Healthy People 2010 goal of vaccinating 90% of this population against these diseases.").

[177] *See id.*, discussing the benefits of the vaccines and the urgent need for more widespread vaccination of adults, particularly seniors:

> Influenza vaccine is safe and effective. Among elderly persons, the benefits of vaccination include reductions in hospitalizations and deaths and health care cost savings. In one six-year serial cohort study in a Minneapolis--St. Paul area health maintenance organization, influenza vaccination of the plan members was associated with a 39% reduction in hospitalizations for pneumonia or influenza, a 32% reduction in hospitalizations for all respiratory conditions, a 27% reduction in hospitalizations for congestive heart failure, and a 50% reduction in deaths from all causes. Administration of the influenza vaccine was also associated with cost savings of $73 per person vaccinated. Other studies have also demonstrated reductions in hospitalizations and deaths as well as cost savings. Pneumococcal diseases are also important causes of morbidity and mortality. Pneumococcal pneumonia is responsible for 100,000-175,000 hospitalizations and 7,000-12,000 deaths each year. Invasive pneumococcal disease is responsible for 50,000 cases of bacteremia and 3,000 cases of meningitis each year. Immunization with the pneumococcal polysaccharide vaccine provides substantial benefits for the elderly. Observational studies have shown that, among elderly persons, vaccination reduces bacteremic infections by about 75% and is associated with cost savings of about $8.27 per person vaccinated. A two-year cohort of elderly persons with chronic lung disease suggested that the benefits for this group might be even greater. In that study, vaccination was associated with a 43% reduction in hospitalizations for pneumonia, 29% fewer deaths, and cost savings of $294 per person vaccinated.

[178] *See id.* at 131, discussing the scenario in Montana, where the problem of underutilization of adult vaccines is particularly acute:

> Montana has the fourth fastest growing population of adults aged 65 years and older. It is considered a frontier rural state. In many small communities, over 50% of the residents are 65 or older. The fastest growing segment in that group consists of adults 80 years and older. Providing

Childhood vaccines, though, have reached a successful type of political equilibrium. They are mandated indirectly, a condition of something else; almost all children are vaccinated as a result.

Enter the cocaine vaccine. Legally, it is well-settled that governments and agencies can simply require immunizations.[179] The historical model that seems to have struck the best political equilibrium is to target minors, and to make it a prerequisite for something else that is nearly universal and considered a benefit. The tied product, to borrow an analogy from antitrust law, could be high school, university (although this removes the feature of targeting minors), extracurricular activities (athletics, clubs, drama, and music cover a lot of students),[180] or even the child tax credit. Of course, individual private schools and colleges would be on even safer ground, legally and politically, if they required the cocaine vaccine for entering students each year or each semester, assuming there is no race to the bottom problem with health-based

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> health care for the population is of primary concern, as 18.5% of the citizens have no insurance coverage. Many seek medical attention only when a problem has become a crisis. This situation leaves hospital emergency rooms to provide primary care, the highest priced care available. Little is done to prevent disease in economically depressed social situations, and people in such settings do not have the income to obtain routine health care. The emphasis in Montana has been to cover children through the Children's Health Insurance Program (CHIP) and to offer expanded qualifying criteria for participants. This program has been very successful, but state budget problems are placing this program on the chopping block in an upcoming special session of the legislature. Immunization of seniors has not become a requirement by statute in Montana--a state that meets in legislative session only every other year. In the 2001 session, a bill that would have required immunization of nursing home residents for influenza and pneumococcal disease was defeated by efforts of the nursing home industry, whose advocates argued that they did not want an additional state mandate.

This brings back memories of the swine flu vaccines ordered by President Ford in the early 1970's and the subsequent political backlash.

[179] *See generally* Hodge & Gostin, *supra* note __, at 853-61 (discussing major appellate court decisions on the constitutionality of mandatory vaccines); *Jacobson,* 197 U.S. at 11.

[180] Verona School Dist. v. Acton, 515 U.S. 646 (1995) (holding a mandatory drug testing did not violate the student's Fourth Amendment rights when required for participation in extra-curricular activities); Bd. of Educ. v. Earls, 536 U.S. 822, 828 (2002) (upholding constitutionality of random testing of students participating in non-athletic competitive extracurricular activities). For a recent, thorough case note on the latter, *see* Jacob L. Brooks, *Constitutional Law - Suspicionless Drug Testing Of Students Participating In Non-Athletic Competitive School Activities: Are All Students Next?* 4 WYO. L. REV. 365 (2004) (criticizing the majority decision in *Earls* and predicting its application to universal drug testing for all students). As radical as universal vaccination of high schoolers against cocaine may sound, it is likely that it would receive constitutional treatment similar to involuntary drug testing in similar contexts.

enrollment requirements.[181] Colleges could boast to parents (who exert financial control over many college students) that their campuses are cocaine-free as a result; students who object to the vaccine have plenty of alternatives elsewhere.

The cocaine vaccine, however, is not like any other vaccine. Every childhood vaccine combats some physical contagion, a pathogenic organism that spreads itself (at least partly) through human carriers.[182] Cocaine abuse and addiction are analogous to this, at best. Cocaine use spreads through social interactions, but the etiology is psychosocial; there is no "cocaine germ" that infects the unwary against their will. Most people do not use cocaine, and this is by choice. One could say that the "default rule" for cocaine use in our culture is nonuse, with an opt-in of use/abuse, with the cost of legal penalties. One cannot easily stop the spread of a regular disease by banning its infection and imposing stiff penalties; but one might deter the use of controlled substances if the penalties are high enough (which clearly they are not, given the widespread violations, but for good reason—sanctions impose costs on the rest of us). So there are alternatives to vaccination against cocaine that are unavailable with most other vaccines; this is the redundancy problem (again), but more serious because of the greater scale of the

[181] Colleges traditionally have required certain vaccinations for enrollment, usually without significant legal challenges. Controversies do arise, however, when an administration adopts new vaccination requirements. *See, e.g.*, Lauren Gong, *Immunization Controversy: Should Colleges Require the Bacterial Meningitis Vaccine?*, STANFORD DAILY, March 4, 2004, *at* http://daily.stanford.edu/tempo?page=printable&repository=0001_article&id=13409.

[182] The one notable (and important for our analysis) exception is Tetanus, also knows as lockjaw, an infection usually transmitted through a puncture wound from a rusty nail or other contaminated source. Tetanus poisons nerves and causes muscle spasms, mostly in the next and jaw. It can lead to breathing and hear t problems, and death in some cases. *See* Calandrillo, *supra* note __, at 370, noting that Tetanus "claimed 601 American victims as recently as 1948." Current numbers are less than forty cases per year. *Id.* ("[W]orldwide tetanus still kills 300,000 newborns and 30,000 birth mothers each year who lack proper vaccination.").

Tetanus, however, is not very contagious at all, despite being highly infectious once inside the body; yet vaccinations against it are nearly universal in the United States. This is significant because it serves as an important precedent for a vaccine against cocaine, despite the lack of "contagiousness" for the drug or addiction. In other words, contagion itself does not appear to be the *sine qua non* of a mandatory policy for any given vaccine. Contagion certainly bolsters the public health argument in favor of mandatory vaccines, but it is not necessary; neither the anti-vaccination lobby nor the tort liability lawsuits seem to single out tetanus vaccines as particularly unnecessary or unjustified. The low-contagiousness/high-infectiousness feature of tetanus may, in fact, provide a useful analogy to the deleterious effects of cocaine – not contagious, but highly infectious (habit-forming, health-impairing).

immunization project under consideration. There is another difference as well: no one wants to get polio or measles, but several million people want the effects of cocaine.[183]

The cocaine vaccine also presents a problem of practicality not present with childhood vaccines: so far, it is not permanent. The effects last a few months and then fade.[184] The flu vaccine is similar in this sense, requiring a new shot every winter, and this may account for its underutilization.[185] In any case, it does not seem financially practicable or politically feasible to round up everyone for a TA-CD shot three or four times a year.

This problem would be less daunting, however, if narrower groups were the focus of the immunization, groups at higher risk for abuse. For example, vaccination of a significant portion of high schoolers, or entering/returning college students, might substantially reduce cocaine consumption for a season of life when the bad habits often start.[186] Even if this is only a chunk

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[183] In this sense, of course, the cocaine vaccine is more analogous to vaccines (now available) against Hepatitis B and Herpes, which are generally transmitted through easily avoidable activities. Individuals could simply refrain from risky activities (needle drug use, unprotected non-monogamous sex) instead of getting the vaccine; yet these vaccines seem less controversial than the cocaine vaccine. It is not immediately clear why this would be the case. Sex overall may be a socially desirable activity (observe the short lifespan of non-sex societies like the Shakers), but unprotected non-monogamous sex is not necessarily a socially desirable activity. The difference must lie in the illegality of cocaine and the resulting stigma that attaches; unprotected sex does not have this level of official taboo associated with it.

[184] Yet another factor to be considered is the effect of the "imperfect vaccination." A recent article addressing the possible effects of an imperfect vaccine – one that is not fully effective in immunizing against the intended infection – highlights the potential consequences of this problem. *Unintended Consequences*, ECONOMIST, Dec. 15, 2001, at 64. This article analyzes the vaccine for malaria. Malaria is responsible for approximately three thousand deaths worldwide per year, with as many as 70% of the victims small children. *Id*. While a vaccination against malaria does exist, the physiology of the infection is markedly different from other commonly immunizable diseases. Malaria, as opposed to the common flu, is not bacterially or virally based; rather it is transferred through small, single-celled organisms, making potential vaccinations less effective. *Id*.

The ineffectiveness of the vaccine can, in certain circumstances, promote the spread of the disease rather than curtailing its growth. By infecting partially-immunized hosts, the disease can increase in virility without dramatically shortening the lifespan of the host, resulting in a more deadly form of the infection. The long-term results from partial immunization are that those who elect to be immunized are actually not incurring a significant benefit over those who are not immunized, and perhaps more importantly, those who are not immunized are at an increased risk from the resulting enhanced strains of the disease. *Id*.

[185] *See* Bratzler et al., *supra* note __, at 128-32 (documenting and discussing the underutilization but not finding a suitable explanation). The fact that is it in one's self-interest to avoid the flu does illustrates an example of the type of "bounded rationality" that Sunstein and Thaler would use to justify some kind of "nudge" in the right direction from policymakers.

[186] This was, in fact, part of the justification for singling out high school athletes for random drug testing in *Vernonia;* Justice Scalia opens the majority's decision observing that the trial court had made a finding that student

of the nationwide cocaine market, it could be a big enough chunk to disrupt cocaine's social prevalence overall, especially if its prevalence in other sectors is a holdover from the users' high school or college days.

Such a move could affect the cocaine market overall. As a hypothetical, suppose that instead of the targeted immunization program discussed in the last paragraph, the entire population of possible cocaine users were immunized for even a four-month period.[187] Suppose further that this caused the cocaine market to bottom out for that period, which seems plausible. If cocaine is indeed the number one street drug, the national infrastructure for distribution must be comprehensive, almost Byzantine. A four month shock to the system could wreak havoc in the underworld. Product could not be sold; uplines would go unpaid; profits would disappear temporarily, while overhead costs of the distribution system would remain and would go uncovered. The shock could disrupt the market for some time, even after everyone's immunity wore off. The sudden surplus of product could significantly reduce the profitability of sellers, and more importantly, producers and importers. From the standpoint of law enforcement, this sounds like a dream: surplus contraband would be warehoused in centralized, concentrated locations while the distribution downline is shut down to weather the bad market conditions.[188]

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athletes were the group "leading the drug culture" in the high school. *See Vernonia*, 515 U.S. at 649. Many of the arguments used to justify involuntary drug testing for designated groups, whether student athletes, parolees, certain employees, public housing tenants, military personnel, etc., would be applicable to administering the cocaine vaccine to the same individuals. The groups or individuals currently subjected to random drug testing are the most likely candidates for the cocaine vaccine.

Each of these groups, however, is subjected to drug testing for different reasons, which is very close to the underlying point of this article. Parolees have curtailed rights and privileges generally; air traffic controllers or pilots would endanger large numbers of innocent bystanders if they performed their duties with impaired judgment; employees and tenants are in a voluntary relationship, and therefore not necessarily "forced" to do anything; and student athletes are the social vanguards of drug problems in the high schools. In none of these cases are the individuals at "high risk" in the sense of being particularly *vulnerable* to the allure of drugs or the snare of addiction. The risks are externalities.

[187] This could probably exclude young children and the elderly.

[188] This shutdown in cocaine distribution may not only have the immediate effect of stemming the flow of illicit drugs onto our streets, but may decrease crime rates as well. "It is undeniable that cocaine use is related to crime. In 1998, 32.9 percent of individuals aged 15 and above who were arrested for non-drug violent and property

In addition, a shock to the market distribution network could reduce availability of the drug for some time, which in turn would affect consumption, at least temporarily. The social nature of drug abuse could mean that even a temporary drop in consumption everywhere could abate the fad; people might move on to other things in the meantime.

The other things they move on to, of course, might be other drugs. This is one of the preeminent objections to the cocaine vaccine: people might simply switch to something else. The answer to this, at least with regard to widespread or universal vaccination, is twofold. First, while some people might move on to other drugs (methamphetamines, heroin, etc.), some of the people would move on to other legal (and less dangerous) ways to have fun. This would be at least a partial victory for champions of the drug war. Second, one must consider the market situation and distribution infrastructure. The number one street drug is likely to be the most available. Switching from cocaine to other illegal drugs would mean switching to something less available, for which there is less of a distribution network. Drug dealers are no drug stores; they do not have a vast selection of products behind the counter. It is a high-stakes, high risk business where there is incentive to specialize in only what is most profitable, rather than offering a diversified product menu. Switching, therefore, may not be so easy. An alternative may be harder to find or have a weaker supply chain compared to cocaine. Limited supply in the face of

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offenses and screened for illegal drug use as a part of the Arestee Drug Abuse Monitoring program tested positive for cocaine." Jeff Desimone, *The Effect of Cocaine Prices on Crime*, 39 ECONOMIC INQUIRY 627 (2001). Desimone posits that current law enforcement techniques targeted at illicit drug use are merely attempts to alter the street-level price of the drugs, thereby reducing criminal activity. *Id*. The author also points out that the opposite effect may in fact materialize: addicts could simply increase their criminal activity (in the form of property crimes such as theft, burglary, etc) in order to cover increased drug expenditures. *See id.* at 628. Through extensive econometric modeling, it is the author's contention, however, that there are "significant negative effects of cocaine [price increases] on all but one of the seven index crime categories included in the Uniform Crime Reporting program of the Federal Bureau of Investigation." *Id*.

increased demand could mean higher prices; less committed consumers may even drop out of the market due to a price increase.[189]

Switching involves other kinds of "switching costs." A new drug is unfamiliar; the user could find its side effects unwelcome. Buying from new vendors is risky. High-stakes businesses depend on a high level of trust. In a world of sting operations and undercover agents, the risk of looking for another drug from another distributor presents special problems. These problems would confront both consumers and street pushers alike; the pushers would be scrambling to replace their product line and must turn to a new set of producers, importers, and suppliers. Of course, this might be an argument for temporary periods of extremely high sanctions and concentrated waves of law enforcement against a single drug. Anything causing a serious interruption in the demand of the most popular street drug for a few months could create similar interruptions to the hidden market mechanisms, and the same opportunities for undercover agents to catch the surging number of "switchers" (both consumers looking for new drugs from new dealers and distributors looking for new suppliers for new drugs). This assumes good coordination and planning, of course.

The potential switching problem, therefore, is really a double-edged sword. The possibility of switching may significantly undermine the original purpose of the vaccine, especially if many people switch to some more dangerous drug for which there is no vaccine. At the same time, switching costs can be high, especially when moving from the market dominator

[189] *See, e.g.*, Jeff Desimone & Matthew C. Farrelly, *Price and Enforcement Effects on Cocaine and Marijuana Demand*, 41 ECONOMIC INQUIRY 98, 99 (2003) ("In theory, cocaine and marijuana act as substitutes in the production of intoxication but also can provide complementary intoxicating effects."). The existence of this relationship, while somewhat uncertain from the empirical evidence, has significant effects on the effectiveness of policies targeted at one drug or the other. For example, the increase in marijuana possession arrests in the period of 1990-1997 may have, on the one hand, "reinforced any effect of cocaine use if the two drugs are complements but had [the] unintended counteractive effect [of increasing cocaine consumption] if they are substitutes." *Id*.

to a less popular and less available alternative.[190] Widespread synchronized switching provides an unbelievable opportunity for undercover law enforcement at every level of the drug trade.

The redundancy argument also has a flip side. While it is true that people can avoid the "disease" in question simply by free choice, more conveniently than one can avoid exposure to outbreaks of pathogenic diseases by being a recluse, millions of people do not choose to abstain from the drug. Similarly, while the government can deter most people from cocaine use by imposing hefty criminal sanctions, these sanctions are costly to society as well. Prisons are costly to run; prosecutions are costly to try. Incarcerating people in their prime years is costly to the workforce and the market for consumer goods; incarcerated parents are extremely costly for their families and the state (when foster care is required). Deterrence comes at a price; it is unclear how this price would compare with the cost of widespread vaccination.

The cocaine vaccine shares the hyperrationality problem with the other childhood vaccines, at least on the individual level. Many would object to receiving the cocaine vaccine on the grounds that they were never going to use cocaine anyway, which is plausible in most cases. The risks of getting vaccinated—a potential allergic reaction, the slight chance of a tainted vaccine supply—seem unnecessary, even onerous. This is the same argument, though, against anyone getting any other vaccine, once most of the population is immune as a whole. The element of "choice" makes no real difference to the "redundancy" or superfluity argument—in both cases, the individual may not need the vaccine enough to justify even a remote risk of

[190] It is possible, of course, that switching would occur toward marijuana, but this would be a downgrade in intensity for those used to cocaine and crack; it is not certain that it would be the first choice as a substitute. There is, interestingly, a new pharmacological treatment for marijuana (or more specifically, for THC, the active ingredient), which block THC reception in the brain. *See, e.g.*, Patrick Zickler, *Cannabinoid Antagonist Reduces Marijuana's Effects in Humans*, NIDA NOTES, Vol. 17 No. 3 (Oct. 2002), available at: http://www.drugabuse.gov/NIDA_Notes/NNVol17N3/Cannabinoid.html. This differs from the cocaine vaccine, of course; the Cannabinoid Antagonist (a.k.a. SR141716) does not work in the bloodstream or induce the body to produce antibodies, but rather attaches to the THC receptors n the brain, blocking ingested THC from its target. In clinical studies, the Antagonist significantly reduces the felt effects of marijuana in the subjects.

serious harm from it. This is true whether we are talking about polio or addiction. The answer to the objection is the same in both cases: there is a greater good achieved if the harm can be eradicated; enough unvaccinated individuals in the aggregate can lead to an epidemic, whether in the form of an outbreak of pestilence or a widespread, costly social problem.

The fact that cocaine use is a voluntary behavior and not an invasive, communicable pathogen, however, could prompt courts to categorize this vaccine differently than others.[191] Some may group it together with other pharmacological treatments for addiction (like methadone). Alternatively, some courts may group the cocaine vaccine together with other pre-

[191] A similar problem is posed by the new Herpes vaccine. This new vaccine, designed to prevent genital herpes, could eliminate the majority of herpes cases in America, according to widespread reports in the news media. *See, e.g.*, Molly M. Ginty, *Herpes Vaccine Might Protect Female Teens*, WOMEN'S ENEWS, (March 7, 2004), at: http://www.womensenews.com/article.cfm/dyn/aid/1741/context/archive; *New Vaccine Prevents Herpes in Women*, CNN.COM/HEALTH, (November 20, 2002), at: http://www.cnn.com/2002/HEALTH/11/20/herpes.vaccine; *Herpes Vaccine Gives Sufferers New Hope*, Click2Houston.com (September 25, 2003), at: http://www.click2houston.com/health/2477951/detail.html. Herpes, the most common sexually transmitted disease, affects more than forty-five million Americans, according to the Center for Disease Control and Prevention (CDC).

The Herpes vaccine presents special policy issues or problems of its own. First, there is the issue of redundancy or voluntariness – the disease is somewhat avoidable with certain self-imposed restrictions in personal lifestyle. This is a problem held in common with the cocaine vaccine; neither Herpes nor cocaine addiction spread like measles, mumps, or polio. This factor introduces a possible stigma for those who volunteer for the vaccine against cocaine or Herpes; onlookers might ask why the person cannot simply make safer decisions.

In addition, the vaccine works only for women – girls, in fact – as clinical test have indicated it produces no results in males or those who have already contracted any variety of Herpes (HSV-I or HSV-2). *See also* Matt Leingang, *Vaccine Testing Short of Subjects: Most Volunteers Already Have Form of Herpes*, CINCINNATI ENQUIRER (February 25, 2004). The HSV -1 virus, oral Herpes (cold sores near the mouth) affects many children before age twelve or fourteen. This means that health care providers must administer the vaccine to girl by the age of ten or twelve in order for it to be effective. Parents and policy makers thus face the awkward scenario of immunizing young girls a few years before they become sexually active, with a vaccine that anticipates their participation in a sexually permissive society. Many parents may not like to think about such things while their daughters are in elementary school. The Herpes vaccine also presents one of the first situations where a public health issue that affects both genders is preventable by immunizing only one of the genders (girls). The question of whether a vaccine could or should be mandatory for females alone would be a constitutional case of first impression.

From a public health standpoint, a vaccine that prevents disease afflicting millions of Americans may be an opportunity that society cannot pass by. Incorporating the Herpes vaccine into the myriad of vaccines required of elementary age school children could be a public health triumph. At the same time, rates of infection for genital Herpes are falling, while other STD's are on the rise. *See, e.g.*, David Wahlberg, *Herpes Rate On The Decline; Georgia Leads Nation In Syphilis*, ATLANTA JOURNAL-CONSTITUTION, March 8, 2004, at: http://www.ajc.com/health/content/health/0304/09cdcstd.html; Lawrence K. Altman, *Genital Herpes Declined 17%, Surveys Show*, N.Y. TIMES, March 9, 2004 at A19, at: http://query.nytimes.com/gst/abstract.html?res=FA0F14FF3C5A0C7A8CDDAA0894DC404482 (CDC reporting that HSV-2, most common cause of genital herpes, fell 17 percent in 1990's, while syphilis rates jumped in 2003 for third consecutive year).

emptive strategies of the war on drugs, like mandatory drug testing, which receive more searching scrutiny from courts than mandatory childhood shots.[192]

The notion of mandating the cocaine vaccine for everyone, or at least for all the people in a certain age group, puts certain unanswered questions about libertarian paternalism in stark relief: how to handle situations where most people would make appropriately self-maximizing choices, but where personal autonomy is in tension with other policy goals focused on the collective good. The tension is more pronounced when one considers that alternative means for addressing the larger social problem are already in place, like the criminal justice system is with drugs.

The concerns would likely focus on the underlying assumption that it is simply unnecessary to immunize most youngsters against cocaine. This assumption, however, has an uncomfortable overlap with the similarity between the subject class and those making the decisions. When we speak of parolees and probationers, or even welfare recipients, there is less certainty, or perhaps less passion, about the needlessness of the cocaine vaccine, despite the fact that there other means of ensuring that these groups abstain as well—such as monitoring and enforcement through drug testing. With these latter two classes, there may be less of a concern about documenting the empirical likelihood that a significant number of individuals would make bad decisions, which is the justification libertarian paternalists otherwise use when intervention seems necessary.

There is mistrust associated with parolees and probationers based on moral approbation.[193] There is a distrust leveled at welfare recipients because of fears that they will be

[192] *See, e.g.,* Robert J. Aalberts, *Drug Testing Tenants: Does it Violate Rights of Privacy?* 38 REAL PROP., PROBATE & TRUST J. 479, 485 87 (2003) (discussing the analogous rules in the context of employee drug testing); *see generally* Mark De Bernadino et al., Guide to State and Federal Drug-Testing Laws 19-347 (10th ed. 2001) (discussing case law and statutory provisions about employee drug testing across jurisdictions).

opportunistic rational actors (the moral hazard/shirking problem), as well as reciprocity-based demands for gratitude and some voluntary yielding of personal autonomy.[194] With more universal vaccinations, however, the policy makers themselves necessarily identify more closely with the subject class; there is more empathy and more of a mirroring effect (seeing oneself or one's own traits in the other, a feeling of relation). These types of identification lead those in charge to trust the judgments of the subject class more, and to be more hesitant about infringing on their autonomous judgments. While this may seem to be simple Bayesian attribution, the objective similarity to a type of nepotism in judgment is troubling.[195] Libertarian paternalism, as a model, offers little guidance about how to handle class-wide nepotistic instincts among policymakers. Usually overt nepotism among policymakers is troubling because it presents a conflict of interest, that is, the policymaker's self-interest is opportunistically exploiting the power of the office or leadership position. Favors to one's relations and friends are favors to oneself, in more ways than one.

In the context of vaccines and drug policy, however, the nepotism looks less like self-interest and more like another form of bounded rationality: the tendency to give the benefit of the doubt to people similar to oneself. The flip side of this tendency is the predilection to demand more assurance of trustworthiness from those who are different or in a dissimilar situation in life, even where there is little objective basis for this. For example, if one considers the social class

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[193] *See supra* notes __ and associated text.

[194] *See supra* notes __ and associated text.

[195] "Nepotism" seems like a strong word in this case—this is certainly not intended to imply that a few privileged (related) individuals would receive special treatment or benefits, as the term usually connotes. On the other hand, the idea of sympathy or empathy that emanates from a sense of group identification, which in turn would influence the decisions of policy makers, does seem better captured by the word "nepotism" than simply "favoritism" or some other term that does not include a sense of personal identification based on shared characteristics. The problem is that I use the term: 1) to refer to a type of favoritism bestowed on a very large, diffuse class—in fact, the majority class in this case, and 2) to refer to something that may operate subconsciously in the decisionmaking process of those in charge, whereas the classic sense of "nepotism" involved something very intentional, I think. Both of these factors could lead some readers to object to the use of the term; but even substituting another term should not change the underlying point.

among which cocaine is most popular (for it is an expensive drug), there may be more reason for concern about college freshman than parolees and probationers—at least from a statistical or Bayesian perspective.[196] This way of thinking is likely to be counter intuitive for policymakers, however, and in that sense is a form of bounded rationality that could taint the results of the libertarian paternalist approach.

To prognosticate realistically for a moment, it seems far less likely that universal vaccinations will be implemented (or even vaccination of an entire age group), than would be the case for the previous two groups discussed. There would be huge political hurdles, immense logistical problems, spiraling costs for the supplies of vaccines and the safe and effective administration of shots, and strict scrutiny from the media if anything went wrong anywhere. Overall, it seems unlikely to happen.[197] As a thought experiment, however, it provides a useful

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[196] This, of course, has been a frequent charge made against the extraordinarily high penalties for crack as opposed to other more dangerous drugs—namely, that crack is inexpensive and more widely used among poor, urban minorities. Some may see the draconian sanctions for crack possession, therefore, either as intentional racist policy or a less intentional (but still race or class-based) lack of concern or mercy for defendants in these cases. This may not be true, of course; the racial impact issue may have been mostly a coincidence, if the draconian measures were implemented precisely because crack was less expensive, more widely used, and therefore more difficult to deter. *See, e.g.*, Judge Louis F. Oberdorfer, *Mandatory Sentencing: One Judge's Perspective—2002*, 40 AM. CRIM. L. REV. 11, 16 (2003) (contending, "There is no material pharmacological difference between crack cocaine or powder cocaine," thus making the great disparities in respective sentences for the two variants particularly troubling).

[197] A caveat, of course, is that states and municipalities have enjoyed a high level of autonomy in their vaccine policies over the years, with courts being very deferential even to decisions of local school boards in this regard. Thus, it is possible that "universal vaccination" (as I have used the term, which is not technically universal) could be adopted in individual locales, school districts, or even states, where some of these political and logistical obstacles would not be so insurmountable.

Perhaps a more telling indicia of the likelihood of universal vaccination for, say, high schoolers is the fact that by 1999, "only 2.87% of schools tested athletes for drugs and only . 57% tested other extracurricular activities. By 2001, the numbers had risen to 4.95% and 3.30% respectively." Brooks, *supra* note __, at 394 n. 261. Brooks is concerned nonetheless:

> Few can deny the Court has moved closer to approving the testing of all students as its reasoning evolved from T.L.O. to Vernonia to Earls. Certainly, the legitimate expectations of privacy held by all students can be no more than students on the speech team or in band, especially since all students undergo some form of health screenings and have to submit to vaccinations in order to attend school. Additionally, the nature of the invasion is minimal according to the Court. Finally, the Court has acknowledged that the nature and immediacy of the government's concerns justify testing even when an identifiable drug problem is not present. In short, drug testing the entire student body might just be another routine procedure, like scoliosis screenings, hearing checks, and MMR shots.

insight into the Sunstein-Thaler model: the model requires policymakers first to identify situations where the subject class is at high risk for making bad decisions. There are no safeguards, however, to prevent policymakers from giving more benefit of the doubt to groups with which they identify more closely than to those who are less similar.[198]

VI. AIR TRAFFIC CONTROLLERS

Some jobs involve high stakes; not always for the worker himself (as might be the case with mercenaries, professional gamblers, or stunt men), but for everyone else. I select air traffic controllers somewhat randomly as an example.[199] Every day, they have thousands of lives in their hands, to some degree. Of course, their judgment could be subject to override by other controllers if they make mistakes, or even by individual pilots; as in the comedy film "*Airplane*," where the pilot manages to land the plane safely despite the control tower worker who "picked the wrong week to give up ____" (the joke changes throughout the movie).[200] In general, though, the pilots rely upon information from the control towers and obey their directives about

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Id.

[198] Although the idea of universal vaccination is admittedly radical when viewed as a single policy jump, there is the distinct possibility that the cocaine vaccine could make incremental inroads into society. Assuming it comes into widespread clinical use as a treatment tool, it is not a reach at all to imagine the drug courts in several states to order it along with ordering participation in a treatment program. From there, it is a small step to impose the vaccine as a condition of supervised release. If the vaccine were in widespread use as a condition of supervised release, encroaching on the welfare arena would not be unthinkable. Finally, if the cocaine vaccine were already a familiar feature of society in these areas, application to any other group that is now subject to mandatory drug testing (high school athletes, certain employees, etc.) would not be radical at all.

[199] There are numerous examples that could be used, of course, where occupations involve duties related to public safety on a grand scale (at least compared to most): airplane pilots, nuclear plant workers, emergency medics, municipal bus drivers, etc. Many of these occupations already involve mandatory random drug testing and other intrusive measures (like the requirement that commercial airline pilots be American citizens). There is strong legal precedent upholding such infringements on personal privacy or autonomy, as one might expect; although the libertarian paternalist model does not address such situations or the rather foreseeable tendency for rule makers to take such institutional history as carte blanche to impose their judgments in other less applicable areas.

[200] *See* AIRPLANE! (Paramount Pictures 1980). The scene mentioned above shows actor Lloyd Bridges playing flight traffic controller "Steven McCrosky."

when and where to approach and land passenger jets. Jets carry hundreds of civilian passengers at a time; everyone knows the devastating casualties from airliner crashes.

Due to these high stakes public policy concerns, it is well-settled law that the government may regularly conduct or require random drug testing of air traffic controllers.[201] Few would object to this, and few would see an issue of paternalism here; the concern is not so much for the individual controller's well-being as that of the scores of innocent lives hanging in the balance. Of course, a staunch libertarian might object that the testing is unnecessary, that the market left to itself would provide some mechanism for travelers to select airlines and airports where they trusted the tower controllers. The transaction costs here seem prohibitive, however, and courts have upheld the testing.

What is interesting is that the cases arose in the first place; some airline employees found the testing objectionable enough to litigate and appeal their case to the Circuit Courts.[202] The

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[201] The Appeals courts have repeatedly held drug testing government employees whose jobs involve public safety does not violate Fourth Amendment rights. The Ninth Circuit clearly expresses the prevailing thoughts of the courts:

> "Fourth Amendment requirements of a warrant and probable cause do not necessarily apply in the drug testing context. Rather, when a search serves special governmental needs, beyond the normal need for law enforcement, it is necessary to balance the individual's privacy expectations against the Government's interests to determine whether it is impractical to require a warrant or some level of individualized suspicion in the particular context."

Bluestein v. Skinner, 908 F.2d 451, 455 (9th Cir. 1990).

The need for dramatic measures in protecting the millions of citizens who travel via commercial airlines is grounded in past problems involving drug use in the airline industry. In applying the precedent established by the Supreme Court in *National Treasury Employees Union v. Von Raab,* 489 U.S. 656 (1989), the *Bluestein* court held:

> "[T]he FAA administrative record included evidence that a number of pilots and other airline crew members had received treatment for cocaine overdoses or addiction; that tests by companies in the industry had turned up instances of drug use by pilots and mechanics; and that drugs were present in the bodies of pilots in two airplane crashes. Moreover, the harm that can be caused by an airplane crash is surely no less than the harm that might be caused by drug impairment in the course of Customs Service employment."

Bluestein 908 F.2d at 451.

[202] The cases discuss the petitioner's legal arguments under the Fourth Amendment and the Administrative Procedures Act without offering a hint about why the requirement actually bothered anyone. Note the cases were brought by a coalition of airline and airport employees, their unions, etc., so it is not clear how much of the litigation was driven by air traffic controllers themselves although they are the largest group subjected to the random testing. In *American Fed'n of Gov't Employees v. Skinner*, 885 F.2d 889-890 (D.C.Cir.1989):

> "The Department identified as Category I personnel those employed in some twenty different positions relating to air, rail, highway, and water transportation. More than 94% of the employees

arguments addressed in the appellate opinions, of course, are entirely legal; there is no mention of what the petitioners found particularly objectionable about the requirements, except that they gave supervisors too much discretion to target certain employees unfairly. It seems that to the individuals being tested, the requirements infringed on their personal privacy and autonomy; it was government intrusion, something closely associated with (and hard to distinguish from) state paternalism.

If the employees in jobs affecting public safety objected to the drug testing, one can imagine there would be objections and renewed litigation over mandatory immunizations to drugs like cocaine. Yet the arguments would be the same on both sides: plaintiffs would assert that the practice was invasive, intrusive, and paternalistic, as well as unnecessary given that they are already drug-free due to regular testing. The subject group, in fact, would undoubtedly see the vaccine as even more offensive than random urine testing. A universal vaccine policy (within this class) would affect everyone, unlike random testing, which gives most people a break most of the time. A shot that puts something into the body is in some sense more intrusive than a test of material that has left the body (although more hygienic for the administrators).[203]

> subject to random testing under the plan work for the Federal Aviation Administration ("FAA"). As we noted earlier, nearly two-thirds of the covered employees occupy a single position, air traffic controller, and are not parties to this litigation."

This builds a case for paternalism in that the air traffic controllers apparently are more receptive of physical regulations and testing and thus would be less likely to oppose cocaine vaccination. .

[203] In *Dyrek v. Garvey*, 334 F.3d 590, 599 (7th Cir. 2003) the FAA's ability to have dominion over ones person through medical guidelines is evidenced through their treatment of air traffic controllers who develop diabetes. Although diabetes is a disqualifer of employment upon applying for an air traffic controller position, if one develops diabetes during employment the FAA has very strict guidelines for controlling the employees health. *Id.* at 592.

> "The FAA also requested results from a general physical examination, a detailed report of Dyrek's insulin dosages and diet, verification that Dyrek had been educated in diabetes and its control and was willing and able to properly monitor and manage his diabetes, and a statement by Dyrek's specialist as to whether his diabetes would adversely affect his ability to safely control air traffic. Insulin treated diabetes is of particular concern in the air traffic control environment due to the potential for acute hypoglycemia induced central nervous system impairment as well as chronic complications involving the eyes, heart, kidneys, nervous system, and extremities."

Regulators could argue that the public safety issues are exactly the same as those justifying drug testing for the same group, that there is evidence (sometimes tragic, involving deaths of others) of cocaine abuse by the airline employees involved, and that the drug testing is not foolproof or comprehensive. The resources devoted to it (as well as the overall intrusiveness of the regime) might be better spent on vaccination that would actually ensure everyone involved was cocaine-free. Why allow any risk that air traffic controllers are using cocaine (as random testing permits), when a safe, clean method is available to eliminate the risk? In addition, the argument raised in the litigation over the testing requirements—that it permitted so much discretion for supervisors that the tests could be used to harass employees wrongfully—would be completely moot if everyone had to get the TA-CD shot periodically. Arguably, it is more fair, even if it is more intrusive.

Here again, the libertarian paternalist model gives little guidance. Should the objections of the subject class matter in this case? What if the objectors garnered the support of the general public–would the model instruct that policy makers should ignore public and private resistance, if the public safety issues and cost-benefit analysis pointed in the direction of mandatory vaccinations?[204]

The same story would repeat itself, of course, for railroad employees, combat military personnel, public transit operators, nuclear facility employees, etc.[205] Many of these occupations

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Id. at 595. If the FAA is allowed control over an employees' autonomy regarding diabetes, it is not a great leap to allow them to administer a vaccine that would completely eliminate the possibility of the employee endangering the lives of passengers through the use of cocaine.

[204] For further discussion of the doctrines regarding special needs exceptions to the usual requirements of the Fourth Amendment, especially regarding drug testing, *see generally* Robert D. Dodson, *Ten Years of Randomized Jurisprudence: Amending the Special Needs Doctrine*, 51 S.C. L. REV. 258 (2000), George M. Dery III, *Are Politicians More Deserving of Privacy than Schoolchildren? How Chandler v. Miller Exposed the Absurdities of Fourth Amendment "Special Needs" Balancing*, 40 ARIZ. L. REV. 73 (1998).

[205] In 1987, The Department of Transportation announced a plan for testing certain employees for unlawful drug use:

involving high risks to the public already involve random drug testing, which some find understandably inconvenient or invasive; the cocaine vaccine would probably seem more invasive, but would offer more assurance of safety. The public policy considerations have outweighed the intrusiveness of the drug testing, at least as far as the courts are concerned. It is not clear how the scales would tip when a greater degree of safety could be achieved with a somewhat more intrusive procedure.[206]

In terms of the Hand Formula, ***B < Lp***, where the "*L*" is astronomical (hundreds of deaths from an airliner crash, for example), and *"p"* varies drastically from very remote under normal circumstances to rather severe where one factor is altered, that is, a single employee is intoxicated with illegal drugs. *"B,*" which in this case mostly represents the intrusiveness of requiring either drug testing or the vaccine, is somewhat unusual in this case, because it does not stand independent of *p; B* and *p* are interrelated. It is not clear how the scales would tip when a greater degree of safety could be achieved with a somewhat more intrusive procedure. Figure 3 may help illustrate my point:

Fig. 3

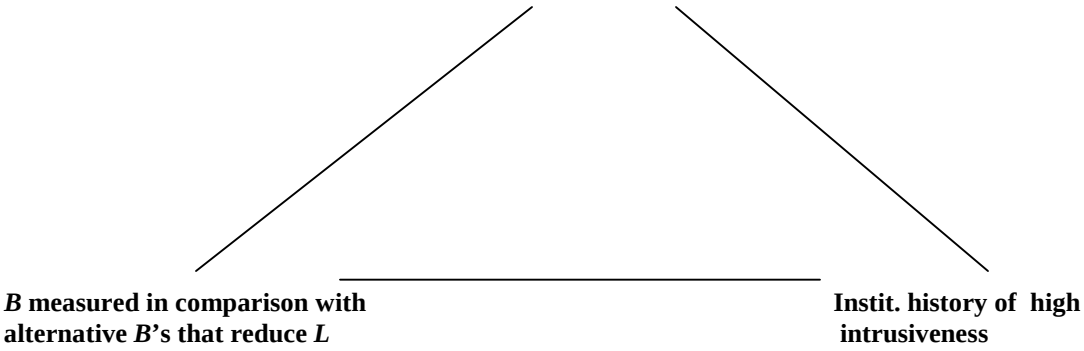
Public safety concerns

(*B* < *Lp* where"*L"* is astronomical/catastrophic, and *"p"* approaches zero with the vaccine)

> "According to Executive Order 12,564, signed by President Ronald Reagan on September 15, 1986, on- or off-duty illegal drug use by federal employees "evidences less than the complete reliability, stability, and good judgment that is consistent with access to sensitive information and creates the possibility of coercion, influence, and irresponsible action under pressure."

Exec. Order No. 12,564, 3 C.F.R. 224 (1987), *reprinted in* 5 U.S.C. § 7301 note at 175-77 (Supp. IV 1986). The Order accordingly directed executive-branch agencies to establish mandatory programs to test employees in "sensitive positions" for the use of illegal drugs. The Department became the first executive agency to implement a drug-testing program pursuant to the President's Order." American Fed'n of Gov't Employees v. Skinner, 885 F.2d 884, 886-887 (D.C.Cir.1989). Included under this testing program were railway safety inspectors, motor vehicle operators, highway safety specialists and an exhausting list of other departmental positions from a wide variety of agencies including the United States Coast Guard, the Office of the Inspector General, and the Saint Lawrence Seaway Development Corp. *Id.* at 888.

[206] *See also* National Treasury Employees Union v. Von Raab, 489 U.S. 602 (1989). Von Raab involved random drug tests of Customs agents specifically charged with catching illegal drugs being smuggled into the country; the agents also carried firearms and had access to classified materials. The Supreme Court upheld the suspicionless searches.



A policy maker's prevailing concerns could be one of these three, all three, or some combination. The point is that the Sunstein/Thaler model does not address situations like this, where the public safety concerns are so serious, which in the minds of some managers or lawmakers would justify almost any level of intrusiveness. Complicating this issue is the fact that there may be less intrusive measures (like constant drug testing) that would be adequately effective, but less effective than the vaccine; it is not clear that the government is under a duty to find the least intrusive measures where public safety concerns are high (this was part of the Court's reasoning for allowing mandatory vaccines in the early part of this century, as discussed earlier). In addition, where there is an institutional and legal history of abnormally high intrusiveness, justifiably or not, there will be a tendency for those in charge to feel that the subject class is less entitled to object to infringements on their autonomy.

VII. CONCLUSION

The cocaine vaccine presents a challenging test case for any overarching approach to public policy; both vaccine and drug policies have always involved difficult balancing tests between public safety and personal autonomy. The model of libertarian paternalism is promising because it relies on the identification of telltale circumstances in which the subject class typically

makes bad (contrary to self-interest) decisions. Applying the model to the cocaine vaccine, however, illustrates some missing pieces: there is no consideration for similarly telltale biases of the decisionmakers themselves (moral judgmentalism, expectations of gratitude, etc.), or the problems of balancing libertarian values, paternalistic concerns about bad decisions, and public safety issues in a three-way equilibrium.

From a purely legal standpoint, the Supreme Court has held consistently that the government can mandate immunizations, even over sincere individual objections. The cocaine vaccine presents a new twist on this scenario, however, as it is not an inoculation against a contagious physical disease, like polio or smallpox. It is not clear whether existing Supreme Court precedent would apply to the cocaine vaccine. At the same time, courts have upheld mandatory drug testing in certain settings, and it seems likely that many of these settings would be situations where the cocaine vaccine (and similar vaccines against other drugs, once they are developed) might be used as a replacement for urine or blood tests. The outcome of a legal challenge to the cocaine vaccines in such cases is uncertain. It is time for the policy discussion to begin.